

The Next Truth

Where Science and Myth Meet[©]

Volume 2 Issue 10

August 2020

Prof. Frank T. McAndrew

How the god you worship influences
the ghosts you see

Dr. Seth Shostak

Arrival: Squid Pro Quo

**A Dyson Sphere;
Why Would
Anyone Construct
Such a Bizarre
Monstrosity?**

*"I hadn't thought about
the subject until I was
already in the MoD."*

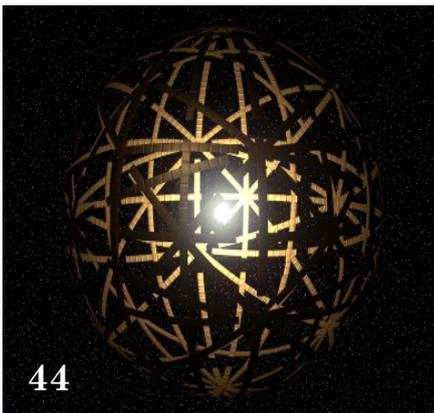
Former MoD Employee,
British Journalist and
Media Commentator

Nick Pope

Weighs In on What or
Who is Out There



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The Next Truth

The Next Truth is an energetic magazine covering both systems of acquiring knowledge that use observation, experimentation, and replication to describe and explain natural phenomena known as Science and Noetic Sciences, a multidisciplinary field that brings objective scientific tools and techniques together with subjective inner knowing. In other words ... "Where Science and Myth Meet".

Our contributors are, without a doubt, tickling your indomitable curiosity and provide scientific explanations concerning topics viewed, and thought of, by the majority as myths.

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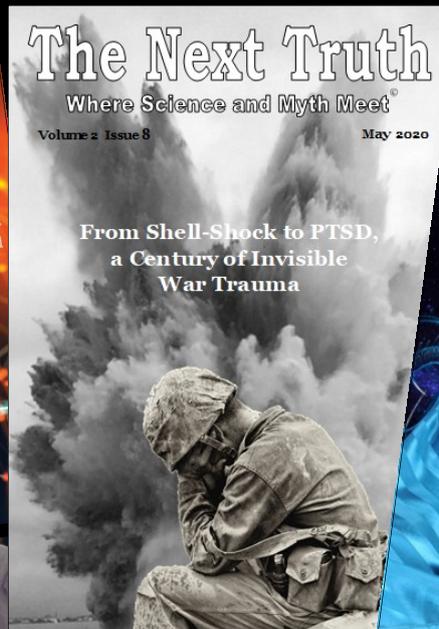
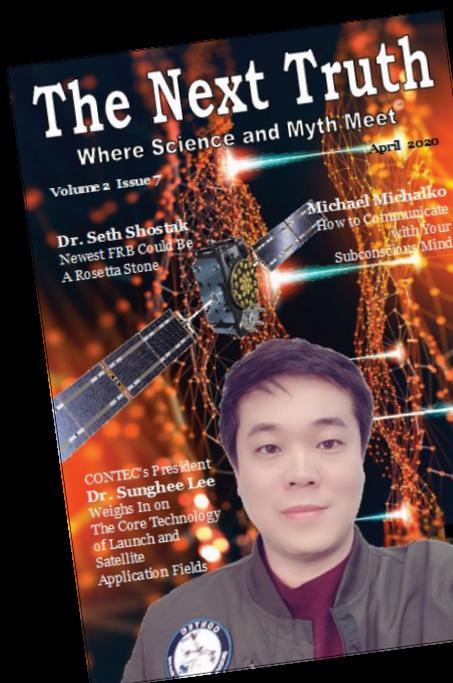




Photo credit:
Antonio Fowl Stark

On 14th of July 2020, The Next Truth has interviewed **Mrs. Chiara Chiesa** who is one of the 1000 "Unstoppable women" who are changing Italy through innovation, list by StartupItalia and aims her focus on inspiring girls and women to pursue STEM and space careers.

She is also the president and co-founder of INTERSTELLARS, an International PR expert and Space Technology Commercialization Transfer advisor and recently has being selected as mentor, female model for the Space4Woman Network of the United Nations for Space Affairs.

Or **download the MP-3 file** via the website of The Next Truth:
http://nexttruth.com/?page_id=347

Download and listen to the very first podcast of The Next Truth
"Paranormal Underground Magazine;
The Backbone of The Next Truth":
http://nexttruth.com/?page_id=25076

Science Has True Frontiers

There is a huge amount of scientists and citizen scientists out there who are trying to figure out what it is that lies in these still foggy areas. And they are getting closer and closer in providing an answer.

But like with everything new, being a frontier... this needs time to grow and crawl out of its cradle. Experiencing an evolution.

This also with all these fantastic theorems, theories and research conducted.

Now, you can look at the contributors of the magazine and listen to their podcasts, as just a couple of people having a vivid imagination, too much time on their hands and publishing articles having no scientific value or depths. But that is the absolute the contrary!

When you read these incredible articles and when you dive into their mind dazzling but, at the same time, logic sounding research you will find that, as soon as you stop talking and start listening, these awe-inspiring theorems and most amazing research is of a tremendous value for traditional science.

Now the following might sound a bit odd for some but traditional, accepted, science can learn from these frontiers and grow beyond its expectation from their ideas and new research projects.

It is very easy to go to the library and take a book from the shelf, read the lines and...well, like a colorless parrot repeating the words you just have read.

It is more difficult to come up with something new what is exploring those areas which have not been explored yet. To write an article about that, to write a paper about this or maybe even your thesis and then publish it.

Even though you might not agree with somebody's idea or theorem or perhaps even disagreeing with the field these frontiers are researching in, I find it...well to be straightforward, absurd when you are kicking someone's behind by means of internet-trolling and/or wishing them the

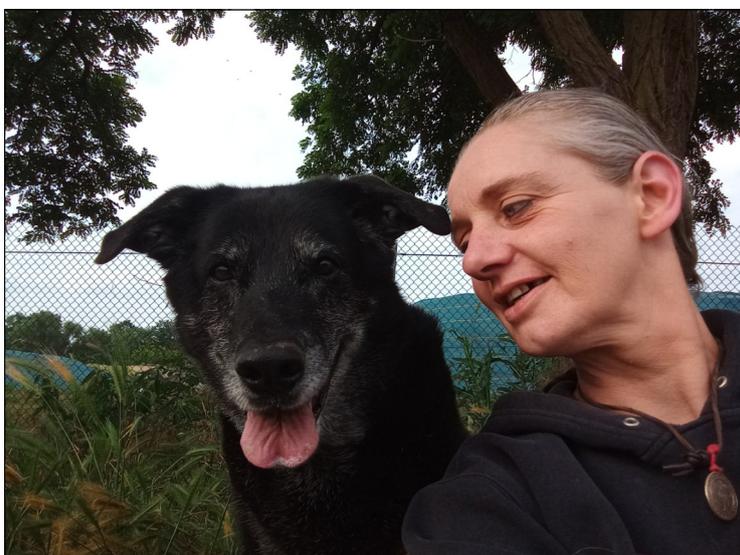
worst through an email because they are coming up with something new or speaking about a plausible relation what combines Noetic science with accepted science.

These people are, unlike many, not walking the same old path humanity have done for centuries. They are showing a behaviour of bravery while researching

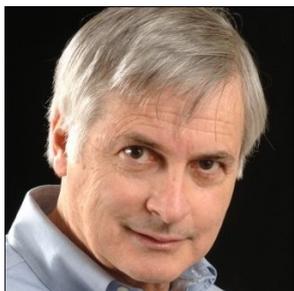
those questions we all are asking but have not the courage for speaking out loud. Scientists and citizen scientists who are leading traditional science step by step into a new evolution and are trying to find a plausible answer for what many of us still not fully understand.

These people...these scientists and citizen scientist...are in my opinion the true frontiers.

So, I would say, let's square the circle and have some respect for those who have the courage to explore these realms and come with something new for you to explore everything what is yet not fully understood.



Contributors



Seth Shostak (San Francisco Bay Area)

Dr. Shostak have developed an interest in extraterrestrial life at the tender age of ten, when he first picked up a book about the Solar System. This innocent beginning eventually led to a degree in radio astronomy, and now, as an Senior Astronomer, Dr. Shostak is an enthusiastic participant in the Institute's SETI observing programs. He's co-authored a college textbook on astrobiology, has written three trade books on SETI and has published more than 400 popular articles on science including regular contributions to NBC News MACH.

www.seti.org



Frank T. McAndrew (Galesburg, Illinois)

Frank McAndrew is the Cornelia H. Dudley Professor of Psychology at Knox College and is well-known as a purveyor of psychological science to lay audiences. He is regarded as one of the "key individuals" in the history of environmental psychology by researchers in that field. Prof. McAndrew is a winner of the Caterpillar Faculty Achievement Award and has been nominated for the prestigious CASE U.S. Professor of the Year Award. He is an elected Fellow of the Association for Psychological Science, the Society of Experimental Social Psychology and a Charter Fellow of the Midwestern Psychological Association.

www.frankmcandrew.com



Ralph Lewis (Toronto, Canada)

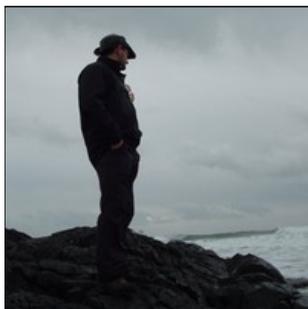
Dr. Lewis, MD, is a psychiatrist at Sunnybrook Health Sciences Centre in Toronto, Canada, an assistant professor in the Department of Psychiatry at the University of Toronto, a psycho-oncology consultant at the Odette Cancer Centre in Toronto and the author of the book "Finding Purpose in a Godless World". Dr. Lewis obtained his MD (MBBCh) in 1990 at the University of the Witwatersrand, South Africa, where he grew up. He works primarily as a clinician in a time-intensive hospital-based practice.

www.purposewithoutgod.com



Nick Pope (Tucson, USA)

Author, journalist and TV personality Nick Pope used to investigate UFOs and other mysteries for the British government, and is the world's leading expert on UFOs, the unexplained and conspiracy theories. Nick used to run the British Government's UFO project. From 1991 to 1994 he researched and investigated UFOs, alien abductions, crop circles and other strange phenomena, leading the media to call him the real Fox Mulder. www.nickpope.net



Matthew Williams (Vancouver, British Columbia)

Matthew is the Curator of Universe Today's Guide to Space. He is also a freelance journalist, a science fiction author, science communicator and a Taekwon-Do instructor. www.universetoday.com



Graham Seal (Perth, Australia)

Graham Seal is Professor of Folklore at Curtin University and a leading expert on Australian cultural history. He is director of the Australia-Asia-Pacific Institute, director of the Australian Folklore Research Unit and convenor of the Australia at War and Peace Research Group. His research activities are extensive and involve working with industry, government, community and academic partners throughout Western Australia, Australia and internationally. Besides being the general editor of the 'Studies in Australia, Asia and the Pacific' research monograph series, Prof. Seal best-selling author of popular history and folklore, a musician and an awarded and recorded songwriter in the folk tradition. john.curtin.edu.au www.sealsongs.blogspot.com



Maria Anna van Driel (Germany)

Maria Anna is the owner and founder of The Next Truth magazine, an investigative science journalist, columnist, foreign correspondent, ghost writer. She is the host of the TNT-podcasts. Her interest includes among others Mythology, Medieval and (pre) Egyptian Symbolism, Quantum-, Optical-, Particle-, and Astroparticle Physics. Maria Anna finds always the time to write new articles while having a nice chat with her (future) contributors.

www.nexttruth.com



Max-Planck-Institute (Greifswald, Germany)

Founded in 1960 IPP is associated to the Helmholtz Association of German Research Centres and the world's only fusion centre investigating devices of both the tokamak and stellarator types. Since 1961 IPP has been an associate of the European Fusion Programme, which comprises the fusion laboratories of the European Union and Switzerland. Today IPP is running the ASDEX Upgrade tokamak at Garching and the Wendelstein 7-X stellarator at Greifswald

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DESY (Hamburg, Germany)



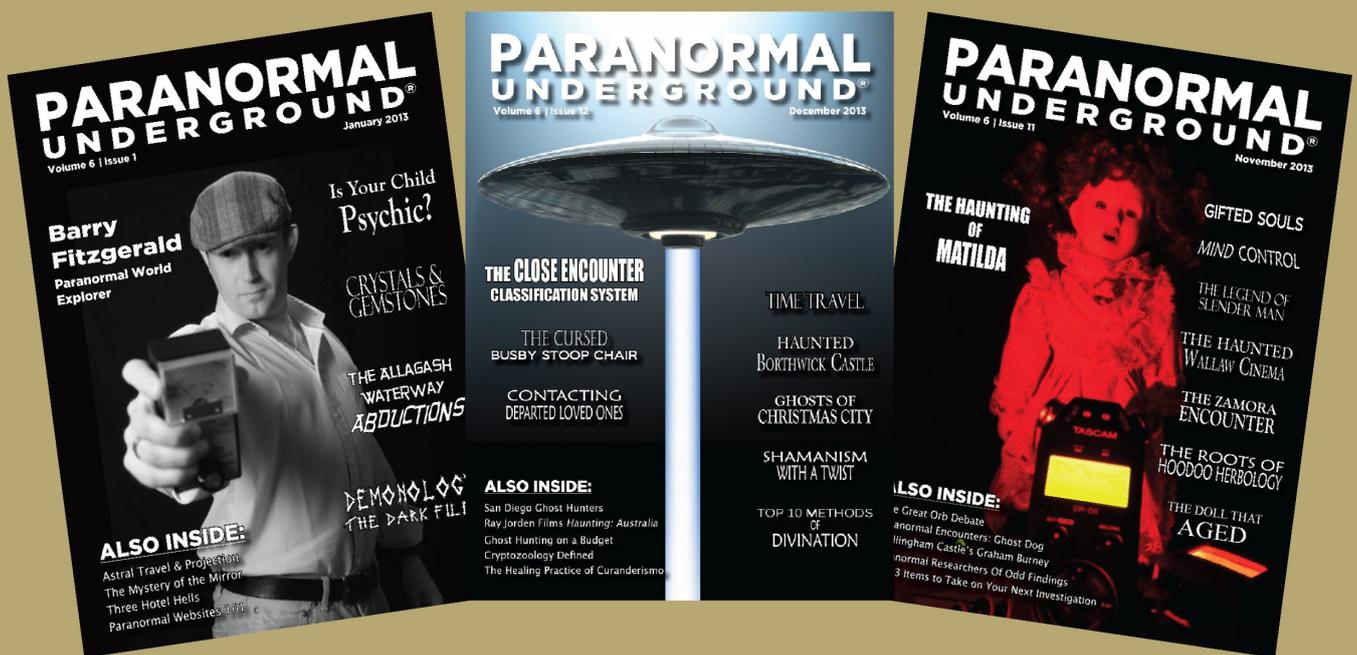
The Research Centre DESY (Deutsches Elektronen-Synchrotron) is one of the world's leading accelerator centres. Researchers use the large-scale facilities at DESY to explore the microcosm in all its variety – from the interactions of tiny elementary particles and the behaviour of new types of nano-materials to bio-molecular processes that are essential to life. The facilities generate the world's most intense X- ray light, accelerate particles to record energies and open completely new windows onto the universe. That makes DESY not only a magnet for more than 3000 guest researchers from over 40 countries every year, but also a coveted partner for national and international cooperation's.

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The Dream in a Dream

Submitted anonymously

Dreams, they seem to have no clear beginning...you are just there in that particular place. Similar to this odd and creepy dream of mine which contains a strange coherence of loose objects, persons and animals yet, strangely enough, everything was connected and wrapped in one single story.

I was wondering around in a place unknown to me but somehow I recognized it as being the terrain of what lies behind a small company. The area spoke of a stage where trucks and vans can deliver their cargo to the company. I was humming a song while walking up and down (in a way of dancing) on two grayish blue large waste containers and made of PVC plastic.

The lids were of such a size that made them softer in the middle, and with every step that I took on the lids, I could see that the lid was slightly dented. I was wearing old, worn white sneakers having no laces in them. On the right of me there was a fence with a gauze frame; leaves with an autumn tint were blown against the fence.

I felt extremely happy while dancing up and down the two waste containers; it almost felt as if I was dancing on air.

Feeling this comfortable, I took a couple of steps away from the containers and jumped off.

Still feeling happy and humming this song, which I, unfortunately, cannot recall. I landed on a small road what looked more like a bicycle and footpath with coarse asphalt of which I could see its structure very clearly... as if I was looking at the space between the small rocks of the asphalt

and the black-grayish colors, through a magnifying glass.

The small road, containing two or three trees on the left and a dozen on the right side, went slightly down but still I felt as if I was dancing on air while humming this song. Then, after taking several steps, I found myself in an open area but still on the same small road... the trees where gone and on both sides there where meadows without a fence.

Why I did so I don't know but I turned around and started walking back in the direction of the containers. I was not humming nor was I dancing and it felt as if the journey back was heavy... it slowed me down.

Only having taken two or three steps, I saw two male lower legs on

my right side of which, and this may sound a bit weird but I could see the dark-colored hairs on this tall male-person's calves. The reason why I knew this person was tall was because his calves were at my eye level while I was standing upright. The shorts that fell to the knees of this male-person had a light sandy khaki color.

Within an instant this male-person was behind me while sitting on a hazel brown horse. From this moment on I understood that this dream was a lucid one because I had the ability to adjust some things but not everything what made me understand that there was someone else present in my dream...at least, the thoughts, wishes or maybe the fears of this person.

Standing in front of me were two other persons who I could not indentify/ recognize. >>>



They presented themselves more like dark silhouettes of which one was female. However, these two figures did not seem to scare me because I had the control over the events in this dream. And so, I ignored them.

The man and the horse were still behind me behaving as if they were protecting me from something. I could feel the structure of the hairs of the horse rubbing against my right cheek...I could feel its body warmth and muscle moves as I laid my right hand on its side.

I turned around, stuck my head underneath the neck of the horse and looked at what was behind it.

A herd of deep black bulls with curled horns crossing the road from the left to the right, was what I saw. I transformed these bulls into grayish-white calves and let them walk free in the direction were they wanted to go. Being curious, I followed them... the man on the hazel brown horse behind me. This man, whose face was blurry, and his horse, was the thing I could not adjust. It felt as if this image was 'controlled' by the other person in my dream.

Still following the calves, I looked down and saw this yellow, dry river sand. I looked up and on my right hand there was a large abandoned cow stable. I estimated it as proximal 50 meters in length... it looked dark, empty and cold. It was not used for a long time for sure.

This stable as well as the enormous concrete pillars of the empty bridge that was, surprisingly, in front of me, crossing the dry river and disappearing over the stable, was not added to the dream by me. Who is this man on his horse behind me?

My attention quickly was distracted by the canal in front this huge empty stable what contained a dirty, milky white liquid what seemed to be there for quite some time. Then, one of the calves jumped in this liquid by itself and ended up

floundering in this filthy liquid while trying to get out on the other side of the canal, but the wall was too high for this poor animal. Strangely enough I did not help this calf because I was stunned that it did this as well as I gained the feeling that I was 'walking' someone else's dream at this point.

The calf did not drown... worse, this liquid drove him insane! Completely out of its mind it was banging its head against the wall of the canal as if it wanted to get rid of something intangible inside its head. It had not control over its own behavior anymore and kept on hitting its head

against the wall until it burst open... its eyes bulged out of the eye sockets and the liquid that got it in via its mouth came out, with blood, through its nostrils.

I walked past the canal under the bridge and, as I turned to look behind me, I saw the cows that had drunk from the liquid, going berserk like that calf, banging their heads against the concrete pillar from the bridge.

While they roared loudly as if they were in a state of panic fear, they were scraping their own skin off trying to get rid of whatever it was they felt was crawling underneath their skin.

Observing this scary and psychotic behavior I could see the ruptured sheets of skin hanging from their heads, revealing the white, unadulterated muscle tissue. Strangely enough, no blood came from the injuries.

Even their pupils were big and looking like pitch black marbles peering out of their eye sockets, extreme fear and hopelessness was what I could read from it. They knew they were dying and they could not do anything against it. They could not stop mutilating themselves, scarping their skins of until their bones were completely visible.

Then, suddenly, a hail white goose came running up to me, keeping his wings folded. And even this animal did not show external madness, in its >>>

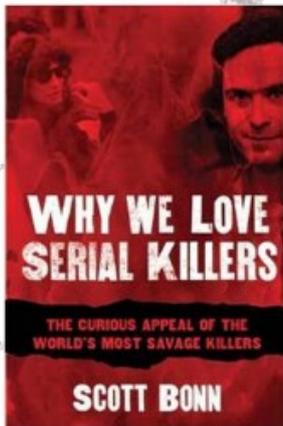


eyes I could read it was turning into one of those cows still killing themselves. This goose started to attack me; it wanted to bite me so I would 'turn' as well... I ran! With full speed, the goose ran after me while I was running underneath the bridge and in direction of the man on this hazel brown horse.

I heard the grinding sound of the dry river sand under my shoes as I made an emergency break, trying not to bump into the horse with high speed. I looked up, into the eyes of the man...his gaze was that of extreme severity and told me; "Don't you dare to cross this line as you are one of us!"

I tried to catch my breath but it seemed to be impossible to take one sip of fresh oxygen and everything went in slow motion. I turned around and saw this huge orange beak of the goose coming at me ... wide open and full of razor-sharp teeth. Nailed to the ground I could do only one thing... waiting for the severe pain of my skin being torn open by this mad goose.

Just before these razor-sharp teeth reached me, I woke up in sweat while my heart was beating like crazy. It took me some minutes to realize that my dream was not entirely mine. Still, the question of whose dream I walked still remains open.

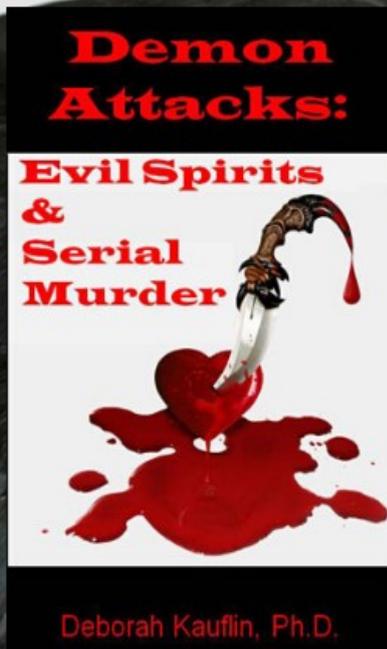


It's no secret that we are both repulsed and seduced by serial killers.

But why is this so? Could it be that we have a gruesome fascination with serial killers for the same reasons we might morbidly stare at a catastrophic automobile accident? Or it is something more shocking and complex?

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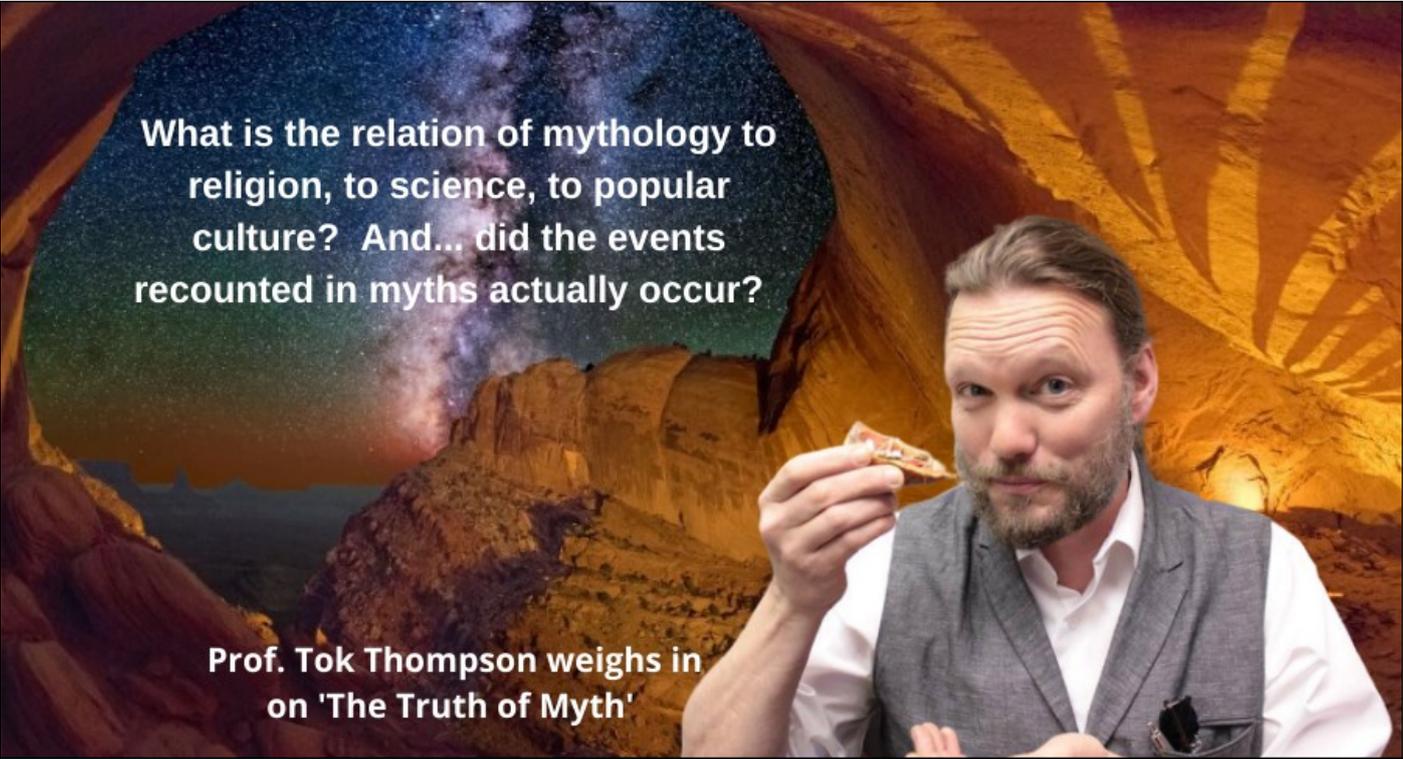
www.amazon.com



What if the world's worst predators worked together? Could evil spirits and human monsters act as one? Paranormal researcher and retired criminal profiler Dr. Deborah Kaufflin worked on hundreds of serial murder & sexual homicide cases for police departments.

After interviewing 25 multiple murderers for criminal profiling research, Dr. Kaufflin found a disturbing link between these killers and dark paranormal activity.

www.smashwords.com



What is the relation of mythology to religion, to science, to popular culture? And... did the events recounted in myths actually occur?

Prof. Tok Thompson weighs in on 'The Truth of Myth'

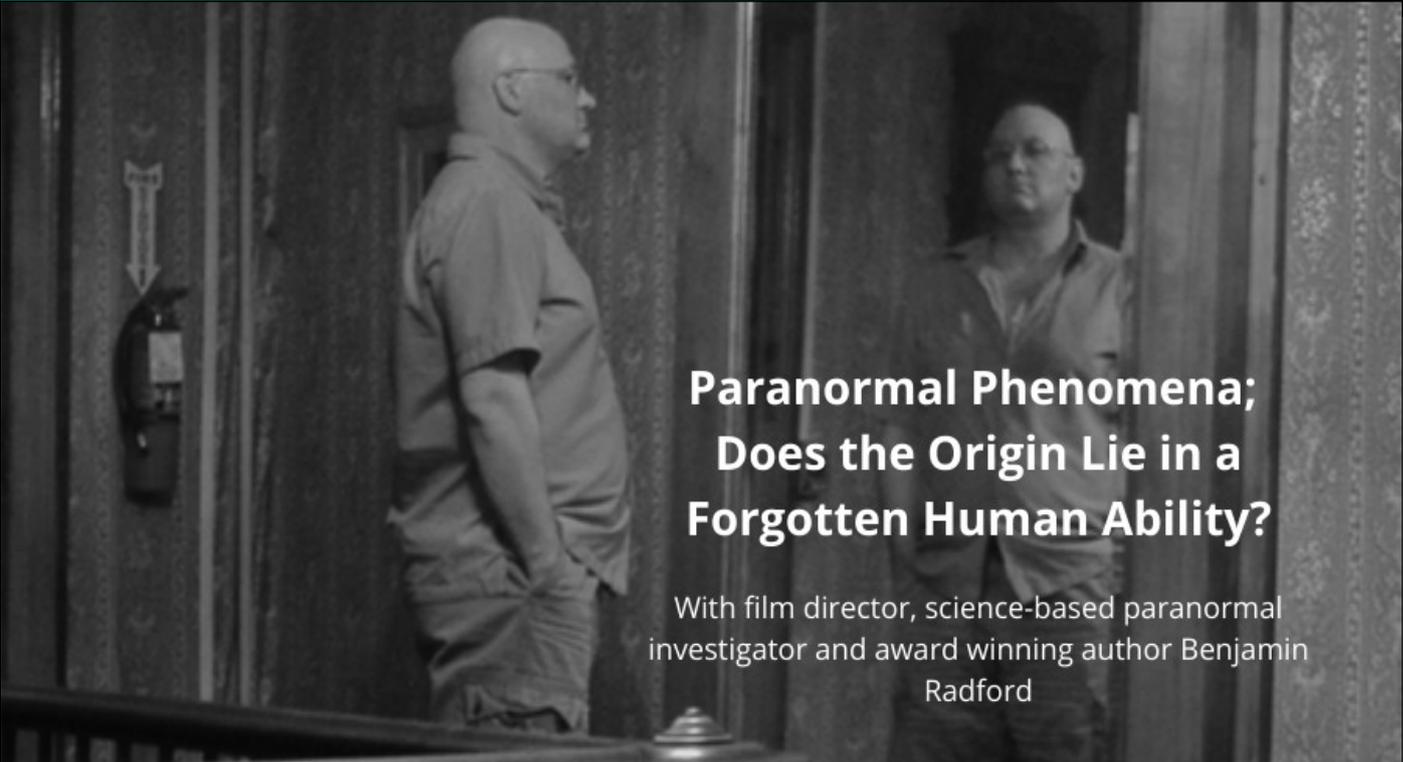
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**Paranormal Phenomena;
Does the Origin Lie in a
Forgotten Human Ability?**

With film director, science-based paranormal investigator and award winning author Benjamin Radford

The Universe's Largest Particle Accelerators are a Whole Lot Bigger

DESY Press Release, www.desy.de

Thanks to specialised gamma-ray telescopes, scientists have gained unprecedented insights into the Universe's largest particle accelerators. The international collaboration bringing together over 200 scientists from 13 countries has shown that the very high-energy gamma-ray emission from galaxies with a highly energetic nucleus is not concentrated in the region close to their central black hole but in fact extends over several thousand light-years along the jets of plasma emitted by these objects. This discovery shakes up current understanding of the maximum energy attainable by the particle acceleration processes.

The work, published in the journal *Nature*, was carried out as part of the H.E.S.S. collaboration, involving in particular the French research centre CNRS, the Max Planck Institute for Nuclear Physics and DESY in Germany, and the University of Innsbruck in Austria.

Over the past few years, scientists have observed the Universe using X-rays and gamma rays, which are very high-energy photons. "These photons originate from systems like accreting supermassive black holes at the heart of certain galaxies, where electrons are accelerated to huge energies unattainable in human built accelerators", said H.E.S.S. scientist Andrew Taylor from DESY, one of the corresponding authors of the publication. In these active galaxies, the central black hole is surrounded by a so-called accretion disc, where matter gathers like in the swirl of a bathtub's plug hole before plunging into oblivion. Often, these accreting black holes shoot two gigantic jets of hot plasma perpendicular to the disc far into the cosmos.

The intensity of the gamma radiation emitted from these systems can vary over very short timescales of up to one minute, suggestive of an origin close to the central black hole.

Additionally, scientists have debated the origin of the X-ray emission in the outflows of these objects, with one scenario requiring extremely energetic electron acceleration. Since electrons accelerated within the jet lose energy quickly, they therefore need to be kept energised to exist all along the jet.

Using the High Energy Stereoscopic System (H.E.S.S.) observatory in Namibia, the international astrophysics collaboration observed a radio galaxy (a galaxy that is highly luminous when observed at radio wavelengths) for over 200

hours at unparalleled resolution in gamma rays.

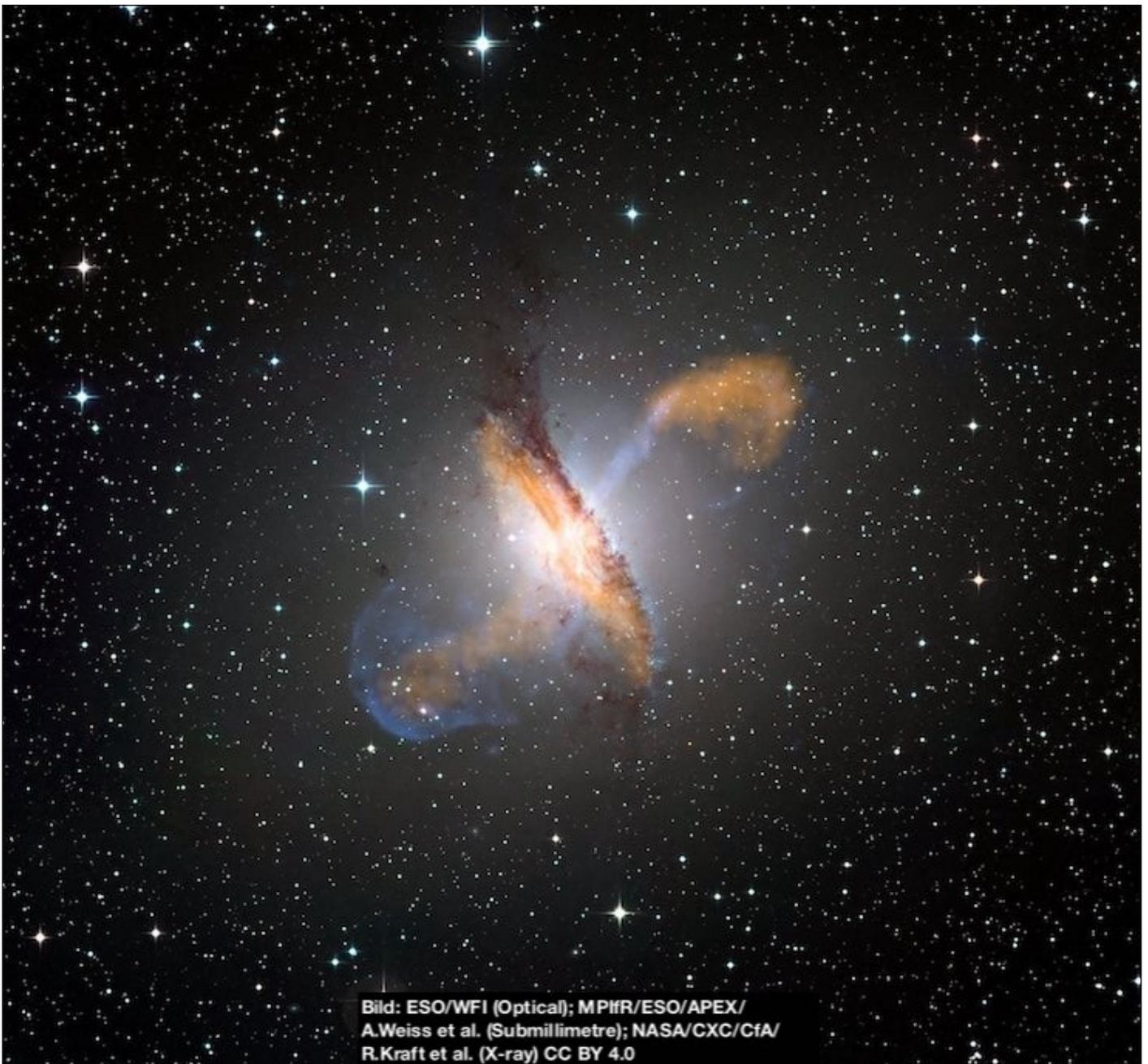
Not only active galaxies' centres, also extragalactic jets accelerate particles to extreme energies

"As the nearest radio galaxy to Earth, Centaurus A, was favourable for such a study, because it enabled us to identify the region emitting the very high-energy radiation while studying the trajectory of the plasma jets," explained H.E.S.S. Deputy Director Mathieu de Naurois from the

Centre National de la Recherche Scientifique (CNRS) in France, also one of the corresponding authors of the publication.

Based on dedicated analysis efforts by groups in Innsbruck and Paris, the scientists were able to show that the gamma-ray source extends over a distance of several thousand light-years. This extended emission indicates that particle acceleration does not take place solely in the vicinity of the black hole but also along the entire length of the plasma jets, as groups in Heidelberg and Zeuthen near Berlin have demonstrated – making the largest particle accelerators in the cosmos even bigger.

The discovery suggests that many radio galaxies with extended jets do indeed efficiently accelerate particles up to extreme energies. This finding therefore brings crucial new information to the debate on the origin of the X-ray emission. >>>



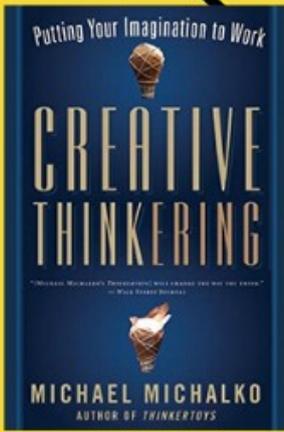
Composite images of the galaxy Centaurus A in different wavelength ranges from submillimetre to X-rays. Credit: ESO/WFI (Optical); MPIfR/ESO/APEX/A.Weiss et al. (Submillimetre); NASA/CXC/CfA/R.Kraft et al. (X-ray) CC BY 4.0

“This discovery revolutionises our understanding of large-scale jets and brings our understanding of cosmic particle acceleration a huge step forward,” said Taylor. “It is deeply satisfying to see long-term observational efforts paying off dividends like this. Indeed, we continue to enjoy being surprised by our close by cosmic friends when looked at in a different way.”

The results of this study required extensive observations and optimised analysis techniques.

The next-generation observatory Cherenkov Telescope Array (CTA) will no doubt make it possible to observe this phenomenon in even greater detail. The H.E.S.S. International Observatory, consisting of five telescopes located in Namibia, involves laboratories from thirteen countries (France, Germany, Namibia, South Africa, Ireland, Armenia, Poland, Australia, Austria, Sweden, the United Kingdom, the Netherlands and Japan).

■ ■ ■



Why doesn't education foster more ingenuity? Why is expertise often the enemy of innovation?

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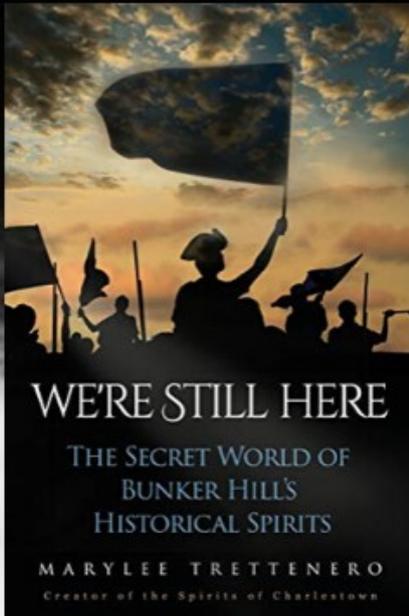
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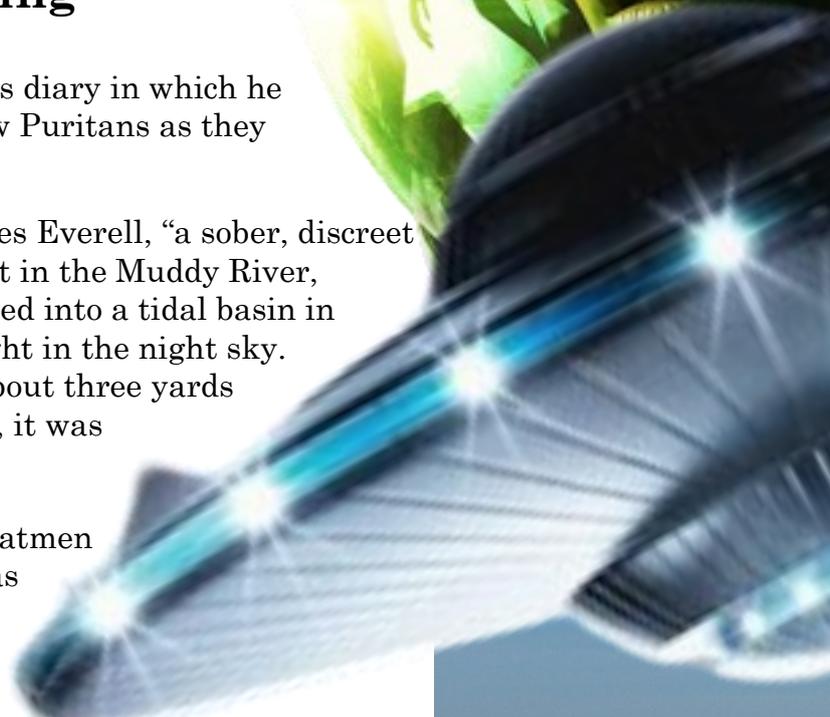
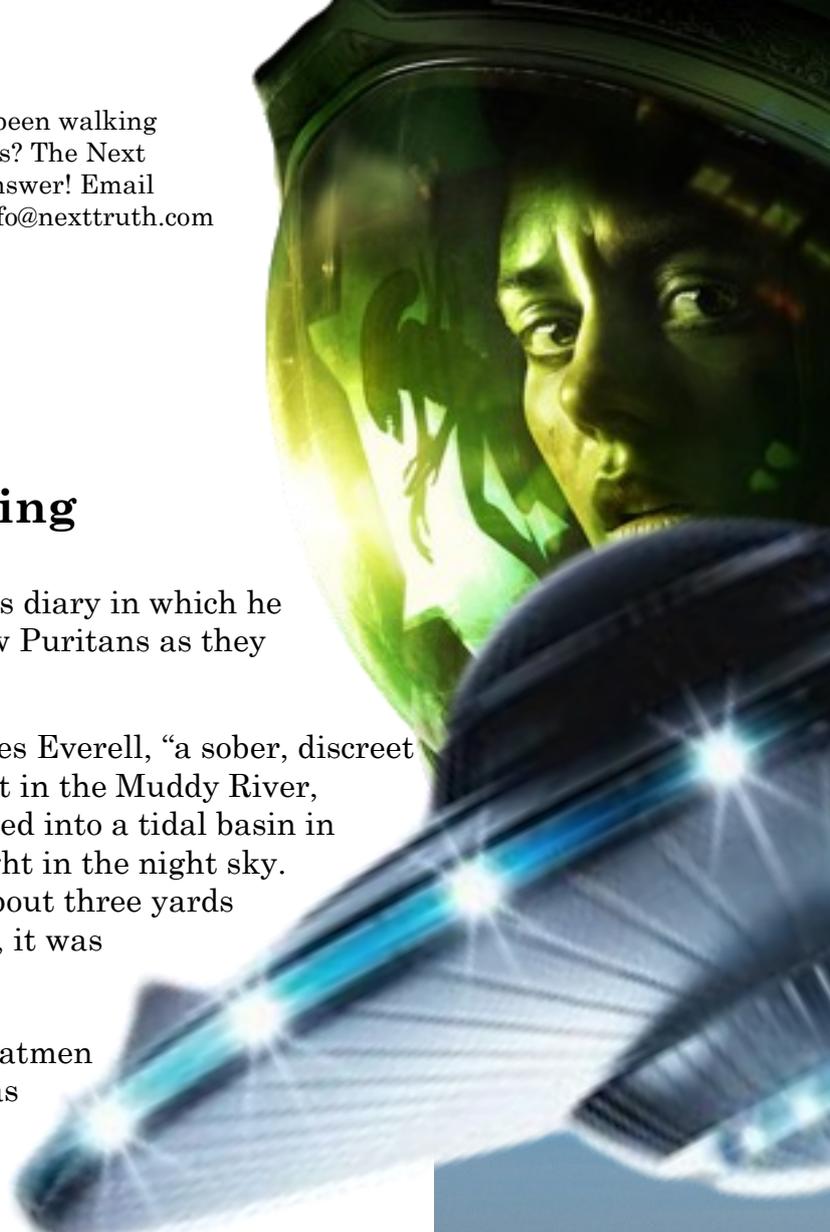
America's First UFO Sighting

On March 1, 1639, John Winthrop opened his diary in which he recorded the trials and triumphs of his fellow Puritans as they made a new life in America.

Winthrop wrote that earlier in the year James Everell, "a sober, discreet man," and two others had been rowing a boat in the Muddy River, which flowed through swampland and emptied into a tidal basin in the Charles River, when they saw a great light in the night sky. "When it stood still, it flamed up, and was about three yards square," the governor reported, "when it ran, it was contracted into the figure of a swine."

Over the course of two to three hours, the boatmen said that the mysterious light "ran as swift as an arrow" darting back and forth between them and the village of Charlestown, a distance of approxi-mately two miles. "Diverse other credible persons saw the same light, after, about the same place," Winthrop added.

Read the full article "*America's First UFO Sighting*" on the website of www.history.com

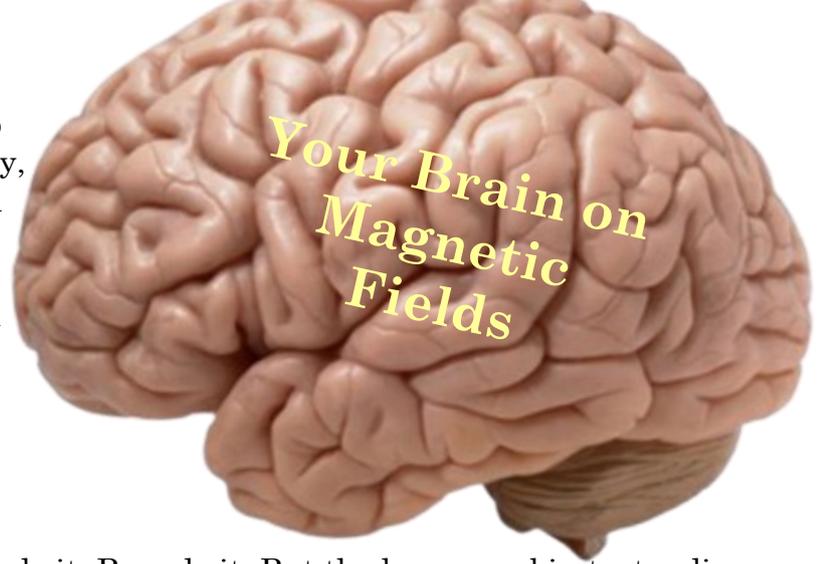


What is Dyson sphere made of?

A hypothetical megastructure AKA a Dyson sphere, might be, say, the size of Earth's orbit around the sun; we orbit at a distance of 93 million miles (about 150 million km).

The website Sentient-Developments describes the Dyson sphere this way: It would consist of a shell of solar collectors (or habitats) around the star. www.earthsky.org

According to a new study, humans can also sense Earth's magnetic field. The new study, published on March 18, 2019 in the journal eNeuro, provides the first direct evidence, from brain scans, that humans can do so, likely through magnetic particles scattered around the brain. www.livescience.com



Birds do it. Bees do it. But the human subject, standing here in a hoodie—can he do it? Joe Kirschvink is determined to find out. For decades, he has shown how critters across the animal kingdom navigate using magnetoreception, or a sense of Earth's magnetic field. Now, the geophysicist at the California Institute of Technology (Caltech) in Pasadena is testing humans to see if they too have this subconscious sixth sense. Kirschvink is pretty sure they do. But he has to prove it.

Read the full article via the website of Science, www.sciencemag.org

Cape Canaveral is a prominent cape in Brevard County, Florida, in the United States, near the center of the state's Atlantic coast.

Officially Cape Kennedy from 1963 to 1973, it lies east of Merritt Island, separated from it by the Banana River.



A Nobel Prize Winning Biochemist Encounters an Alien Glowing, Talking Raccoon

"I walked down the steps, turned right, and then at the far end of the path, under a fir tree, there was something glowing. I pointed my flashlight at it anyhow. It only made it whiter where the beam landed. It seemed to be a raccoon. I wasn't frightened. Later, I wondered if it could have been a hologram, projected from God knows where. The raccoon spoke. 'Good evening, doctor,' it said. I said something back, I don't remember what, probably, 'Hello.' The next thing I remember, it was early in the morning. I was walking along a road uphill from my house. What went through my head as I walked down toward my house was, 'What the hell am I doing here?' I had no memory of the night before. I thought maybe I had passed out and spent the night outside. But nights are damp in the summer in Mendocino, and my clothes were dry, and they weren't dirty."

Read the full article on the website of Mysterious Universe, www.mysteriousuniverse.org



Could Invisible Extra-terrestrial Life Forms Really Exist Among Us?

Life is pretty easy to recognize. It moves, it grows, it eats, it excretes, it reproduces. In biology, researchers often use the acronym 'MRS-GREN' to describe it. It stands for movement, respiration, sensitivity, growth, reproduction, excretion and nutrition.

But Helen Sharman, Britain's first astronaut and a chemist at Imperial College London, recently said that alien life forms that are impossible to spot may be living among us.

Read the full article via the website of Sci-News, www.sci-news.com

NASA and Boeing have completed reviews of the company's uncrewed Orbital Flight Test (OFT) that flew in December 2019 and are working toward a plan to reflly the mission to the International Space Station as part of the agency's Commercial Crew Program.

NASA and Boeing Complete Orbital Flight Test Reviews



The joint NASA-Boeing Independent Review team completed their final assessments of issues that were detected during the first test flight of Boeing's CST-100 Starliner spacecraft. Following this conclusion, the team identified a total of 80 recommendations that Boeing, in collaboration with NASA, is addressing. A launch date has not been set yet for the second flight test, dubbed OFT-2.

To read the full article, www.blogs.nasa.gov.com

Q&A

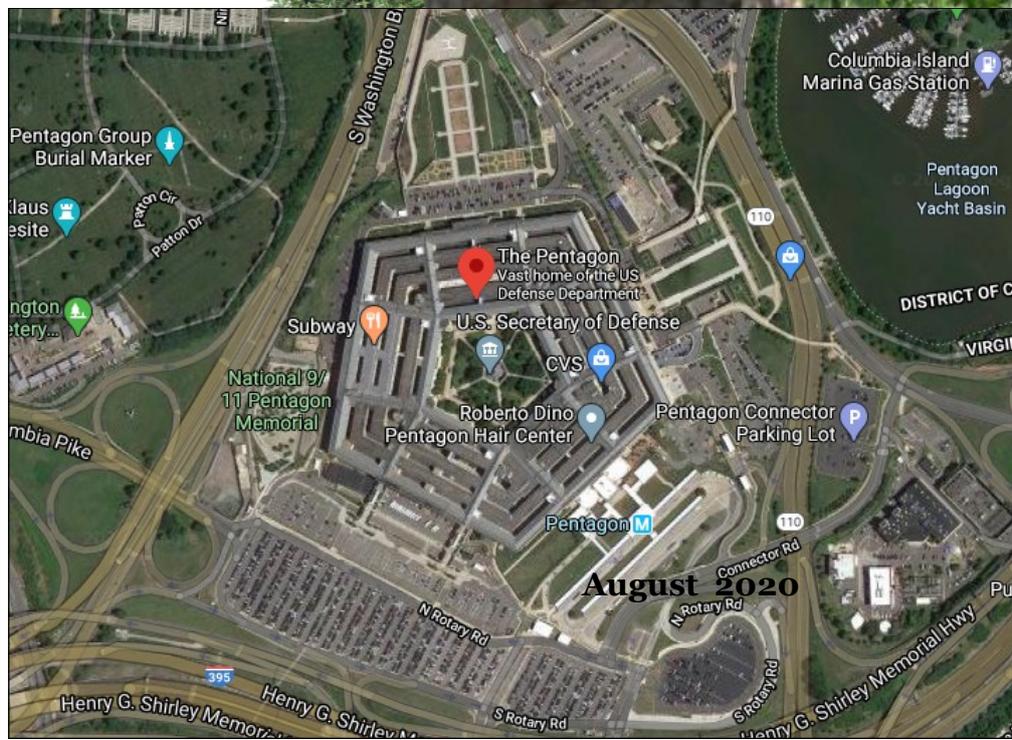
Questions you have been walking around with for years? The Next Truth provides an answer! Email your questions to; info@nexttruth.com

New York Times Reveals the Existence of the Pentagon UFO Program That Never Went Away

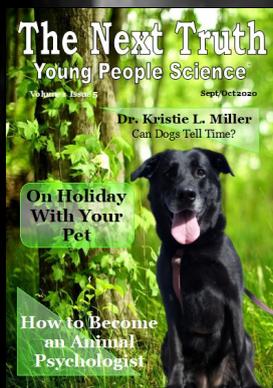
The Unidentified Aerial Phenomenon Task Force made its official debut on June 17, 2020, in the Intelligence Authorization Act for Fiscal Year 2021 report submitted to the Senate by Florida Senator Marco Rubio, who earlier this week said in public that he personally hopes UFOs are otherworldly and not secret planes from China.

The article quotes Eric W. Davis, an astrophysicist who worked as a subcontractor and then a consultant AATIP, who said he told government officials in 2019 and 2020 that materials he had examined were indeed impossible for humans to make and possibly from “off-road vehicles not made on this earth.” It also quoted former senator Harry Reid, who helped fund AATIP originally, saying that he had seen evidence of otherworldly craft and “there were actual materials that the government and the private sector had in their possession.” Throw in a confirmation from Luis Elizondo, the former director of AATIP, that the new task force evolved from AATIP and you pretty much have the whole blockbuster revelation. Overwhelmed yet?

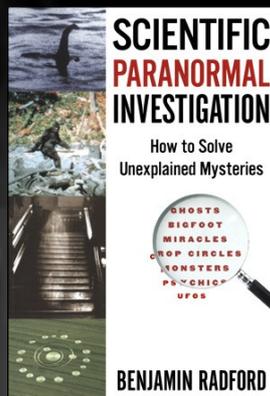
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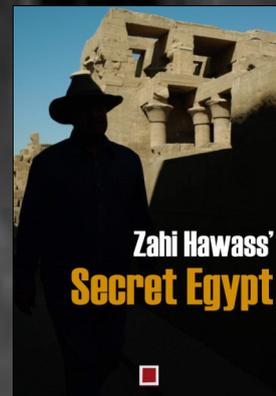
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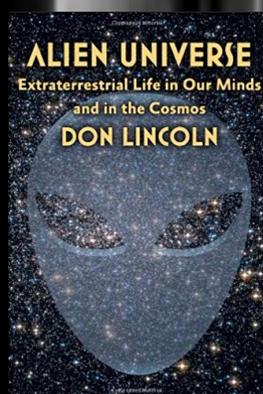
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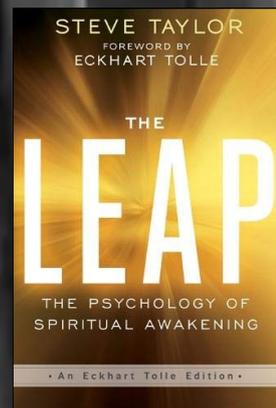
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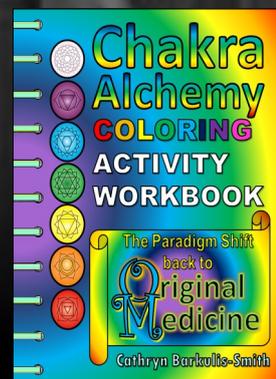
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Arrival: Squid Pro Quo

By Dr. Seth Shostak, www.seti.org

If scientists ever succeed in making contact with extraterrestrial beings, who gets to steer the conversation? Indeed, how do we even *have* a conversation? Despite what Gene Roddenberry told you, any real aliens' command of English will be meager.

A major new sci-fi film, *Arrival*, deals with these and other frequently ignored matters. Its unconventional style is both understated and cerebral. This is not a shoot-'em-up alien flick; rather, the makers have emphasized empathy and character development, an approach that may disappoint middle school boys, but is refreshing for the rest of us.

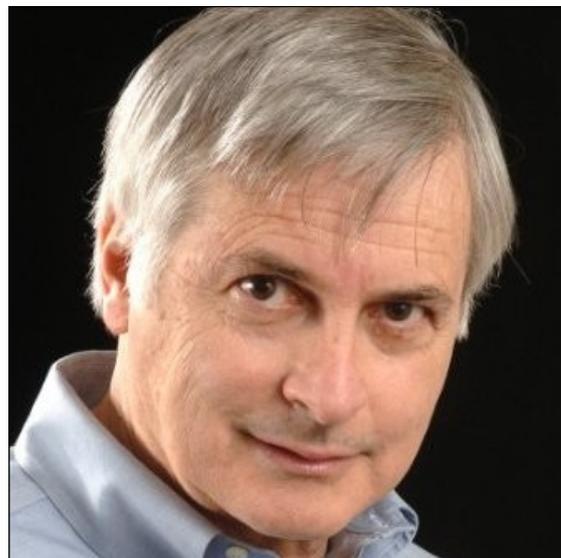
The first thing that becomes obvious once the film gets into its second reel is that it has veered from the usual playbook for cosmic encounters. In nine out of ten films featuring space beings, the aliens - presumably cranky from a peanutless trip of hundreds of trillions of miles - take it out on the locals. A favorite amusement is to level cities and zap the citizenry. The hunt is on, and the peasants are the pheasants. Cue the computer-generated imagery.

That, at least, makes for a straightforward story line, and is an excuse for an alien wilding in which iconic buildings are the first to go.

But the visitors in *Arrival* aren't interested in giving postcard cities instant urban renewal. They've got some problem in their future that only our descendants can solve. Consequently, they're here to negotiate and play nice.

Unfortunately, there's still that pesky language barrier. A linguist (Amy Adams) and a theoretical physicist (Jeremy Renner) are brought to bear, seeking ways to converse with these squid-like guests.

There's a faint hint of reality in this, because honest-to-goodness academics have thought about how we might deal with the language problem should our radio telescopes pick up a signal from another world.



Some scientists have proposed devising patters based on mathematics. My preference would be to simply compile a picture dictionary. Even a few hundred words might be adequate for simple conversation of the kind found in most dive bars.

In the film, this latter approach is taken and, gratifyingly, works out. The calamari creatures are soon spelling out sentences in their own inefficient writing style while bellowing like a sousaphone quartet. It's better banter than what Chris Columbus was able to manage with the Caribbean natives.

But even aside from the chit-chat, you have to admire the innovative way in which *Arrival* depicts its aliens. Central Casting's little gray guys, with their glabrous complexions, big eyes, and anthropomorphic build, have been jettisoned in favor of large, shadowy creatures who stay behind glass in their own life-sustaining atmosphere. Indeed, you might suspect that they share some evolutionary heritage with redwood trees, given their preference for a foggy environment.

Whatever they're breathing, it can't be put in tanks, 'cause these aliens never leave their spaceships. That's novel too. Imagine sending humans to the moon, but with instructions to keep the hatch closed and never, ever take a small step >>>



for your species. And unlike the interiors of most interstellar rockets, the ones in *Arrival* are devoid of flashing lights, computer screens, knobs, dials, white plastic, or any other geeky accoutrements. Their vessels are more spartan than *Leonidas*.

And then there's the aliens' peculiar conception of time that, like their writing style, is somehow circular. I had a vague unease that this probably violates fundamental physics, but at least it's something new in an invasion film.

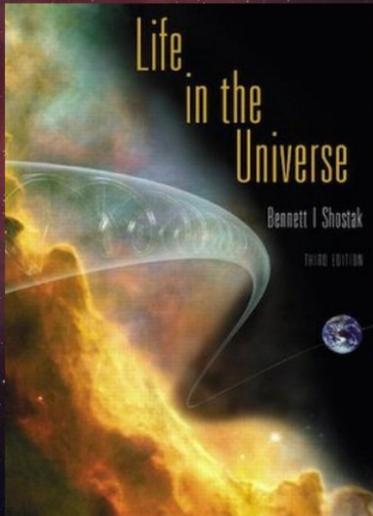
One concern: While it's not a certainty that these aliens are sea creatures, that seems a good bet.

After all, they have tentacles and a pair of arms that can mess up the furniture by belching gallons of ink. But these guys are big, and I figure that, given their unthreatening behavior, they're vulnerable to ending up as delicacies at Japanese restaurants. Best estimate: at least two thousand sushi rolls per alien.

How refreshing to think that visitors from another world have landed, and the cookbook applies to them.



This article first appeared on the website of Huffpost, www.huffpost.com



Dr. Seth Shostak

"Life in the Universe" takes non-science majors on a journey through the solar system and beyond, using a rigorous yet accessible introduction to astronomy, biology, and geology to explain natural phenomena and to explore profound scientific questions about astrobiology.

Designed for astrobiology courses but also suitable for introductory astronomy courses, *Life in the Universe* captures your imagination by exploring fundamental pan-scientific questions: What is life? How did life begin on Earth?

What are the most extreme forms of life currently known? Is it reasonable to imagine life beyond Earth?

www.sethshostak.com

How the God You Worship Influences the Ghosts You See

By Professor F. T. McAndrew Ph.D. , www.frankmcandrew.com

If you've ever seen a ghost, you have something in common with 18 percent of Americans. But while there's evidence that our brains are hardwired to see ghosts, the apparitions we see tend to vary.

Historians who study and catalogue ghostly encounters across time will tell you that ghosts come in a range of shapes and forms. Some haunt individuals, appearing in dreams or popping up at unexpected times. Others haunt a specific location and are prepared to spook any passersby. Some are the spitting images of what were once real humans. And then there are the noisy and troublesome poltergeists, which appear as uncontrollable supernatural forces instead of people.

What might explain such discrepancies? And are some people more likely to see ghosts than others? It turns out that our religious background could play a role.

Religion might ease one fear

Some argue that religion evolved as a terror management device, a handy way to remove the uncertainty surrounding one of the scariest things we can imagine: death.

Almost every religion offers an explanation for what happens to us after we die, with the assurance that death isn't the end. And there is, in fact, evidence that very religious people don't fear death as much as others.

Protestants, Catholics and Muslims all believe in a day of resurrection and judgment, in which our souls are directed to heaven ("Jannah" in the case of Muslims) or hell based upon our good deeds (or misdeeds) during our time spent on Earth. Catholics also believe in a halfway house called purgatory, in which people who aren't quite worthy of heaven but are too good for hell can pay their dues before getting a ticket to paradise.

Buddhists and Hindus believe in a cycle of death and reincarnation that can eventually result in a permanent spiritual state, provided you play



Prof. McAndrew's research has appeared in dozens of professional journals and is regularly featured in popular media outlets such as The New Yorker, NPR, the BBC, The New York Times, The Atlantic, and NBC's Today Show.

your cards right over each successive lifetime. Even the Jewish faith, which doesn't really focus on the afterlife, assumes that an afterlife does exist.

By following a clear set of rules, worshipers can assert control: They know what they have to do to make good things, rather than bad things, happen to them after they take the big dirt nap.

Tormented souls and sinister demons

But there's a catch. Religion's talent for easing our anxiety about death may have had the perverse effect of increasing the likelihood that we'll be on edge about ghosts, spirits and other supernatural beings. This, however, may depend upon how religious you actually are.

All of the available evidence suggests that those who describe themselves as believers – but who don't attend church regularly – are twice as likely to believe in ghosts than those at the two extremes of religious belief: nonbelievers and the deeply devout. >>>

With most religions populated by an impressive cadre of prophets, gods, spirits, angels and miracles, the tenets of religious faith might shape what you see. They could determine whether a visitor from the spirit world is a welcome or unwelcome guest, while also influencing whom you think you're meeting.

For example, in Medieval Catholic Europe, ghosts were assumed to be the tormented souls of people suffering for their sins in purgatory. But during the Protestant Reformation, since most Protestants believed that souls went immediately to heaven or hell, paranormal activity was thought to be the work of angels, demons or other decidedly nonhuman supernatural beings.

While most Protestant sects today are largely silent about the existence of ghosts, Catholic theology remains amenable to the existence of ghosts. Catholics typically believe that God may permit dead individuals to visit their counterparts on Earth, but the church has traditionally condemned occult activities such as seances and Ouija boards.

In some religions, such as Voodoo, spirits and ghosts play a central role. Religions such as Buddhism and Hinduism support a belief in ghosts, but ghosts play only a minor role in the religion itself. For Hindus, ghosts are the souls of individuals who suffered a violent death or of people who were not accorded the appropriate and required death rituals.

Buddhist ghosts are reincarnated individuals who may be sorting out bad karma. Muslims don't believe that dead people can return as ghosts, so if a Muslim thinks he's encountered a ghost, it's thought to be the work of Jinn – beings that contain a mix of spiritual and physical properties, whose intentions can be malevolent or benevolent depending upon the situation. There are several other religions, such as Jehovah's Witnesses, that also believe ghostly apparitions are demons in disguise rather than the souls of deceased people.

Jews typically discourage occult activities designed to contact the dead, and there seems to be less consensus within Judaism as to the status of ghosts. However, Jewish oral traditions include stories of evil ghosts (Dybbuks) and kindly, helpful ghosts (Ibburs) who try to insert themselves in human affairs.

It appears people across eras, religions and cultures have always been curious about a spiritual world that exists behind the curtain of death.

Together, it speaks to how thoughts, fears and visions of death are integral to human life.



This article first appeared on the website of the Conversation under the creative license, www.theconversation.com

Can Gossip Be Good?

"It helped us thrive in ancient times, and in our modern world it makes us feel connected to others—as long as it is done properly"

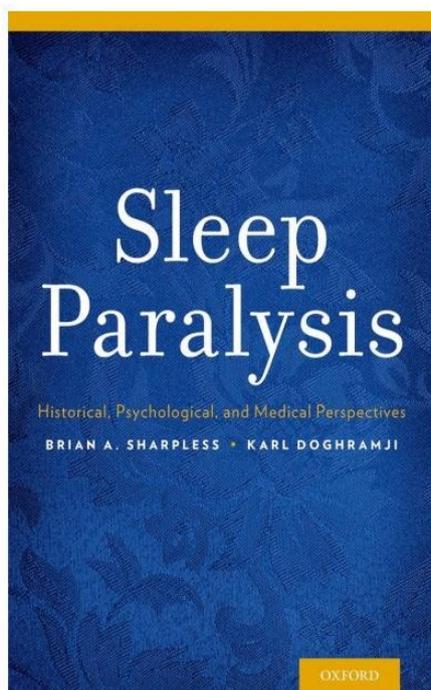
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SLEEP PARALYSIS

HISTORICAL, PSYCHOLOGICAL, AND MEDICAL PERSPECTIVES

Brian Sharpless and Karl Doghramji



Humans throughout history have described a peculiar state between wakefulness and sleep during which they are consciously aware of their surroundings, but physically paralyzed. Sleep paralysis is also commonly accompanied by high levels of fear, feelings of suffocation, and hallucinations (i.e., waking dreams). Early interpretations of this event were that it was an actual attack by malevolent and supernatural entities such as demons, ghosts, or witches. Some of these beliefs persist to the present day in the form of nocturnal visitations by extraterrestrials and shadow people.

Sleep Paralysis: Historical, Psychological, and Medical Perspectives offers the first comprehensive examination of sleep paralysis from scientific and cultural perspectives. Drs. Brian Sharpless and Karl Doghramji synthesize the many literatures while providing practical guidance for the diagnosis and treatment of sleep paralysis. Included are medication suggestions and a new psychotherapy manual for mental health professionals. The result is a volume that illuminates the cultural, medical, and intellectual importance of this understudied phenomenon.

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- The first comprehensive analysis of contemporary scientific literature on sleep paralysis
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Brian Sharpless, PhD is an associate professor of clinical psychology at The American School of Professional Psychology at Argosy University, Washington, DC. He has authored over 35 publications on various topics related to psychopathology, psychotherapy, and the history and philosophy of clinical psychology.

Karl Doghramji, MD is a Professor of Psychiatry, Neurology, and Medicine at Thomas Jefferson University; a Medical Director at Jefferson Sleep Disorders Center; and Program Director at Fellowship in Sleep Medicine.

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How radioactive is the Earth's core?

About one in every thousand potassium atoms is radioactive. The heat generated in the core turns the iron into a convecting dynamo that maintains a magnetic field strong enough to shield the planet from the solar wind.

Read the full press release "*Radioactive potassium may be major heat source in Earth's core*" via the website of UC Berkeley, www.berkeley.edu

What Magnetic Fields Do to Your Brain and Body

There's no escaping magnetic fields — they're all around us. For starters, the Earth itself is like a giant magnet. A spinning ball of liquid iron in our planet's core generates the vast magnetic field that moves our compass needles around and directs the internal compasses of migrating birds, bats, and other animals. On top of that, ever-industrious humans have produced artificial magnetic fields with power lines, transport systems, electrical appliances, and medical equipment.

Read the full article via the website of Discover, www.discovermagazine.com





Earth's Interior

Earth's core is the very hot, very dense center of our planet. The ball-shaped core lies beneath the cool, brittle crust and the mostly-solid mantle. The core is found about 2,900 kilometers (1,802 miles) below Earth's surface, and has a radius of about 3,485 kilometers (2,165 miles).

Planet Earth is older than the core.

When Earth was formed about 4.5 billion years ago, it was a uniform ball of hot rock. Radioactive decay and leftover heat from planetary formation (the collision, accretion, and compression of space rocks) caused the ball to get even hotter. Eventually, after about 500 million years, our young planet's temperature heated to the melting point of iron—about 1,538° Celsius (2,800° Fahrenheit). This pivotal moment in Earth's history is called the iron catastrophe.

Read the full article via the website of National Geographic, www.nationalgeographic.org

Did you know?

Electromagnetic fields, or electric shocks, have induced specific hallucinations in people. Those who are exposed to them, even in laboratory settings, have caused people to complain about a feeling of people following them, talking to them, or watching them. This is not always an uncomfortable sensation.

Some people interpret this presence as a malevolent presence, especially if it's coupled with a feeling of unease, but others say they felt an inspiring or comforting presence. Ghost hunters will sometimes say the reverse - that ghosts cause a high electromagnetic field, or sometimes that a high electromagnetic field will allow ghosts to appear. Nobody is sure, yet, what these fields do to ghost brain DNA.

A Purely Physical Universe? “There Must Be Something More.”

By Dr. Ralph Lewis, www.purposewithoutgod.com

If we long to believe that the stars rise and set for us, that we are the reason there is a Universe, does science do us a disservice in deflating our conceits? ... For me it is far better to grasp the universe as it really is than to persist in delusion, however satisfying and reassuring.”
— Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark*¹

What if this chaotic universe and life are fundamentally random, with no "higher" purpose? Can there be coherent purpose, meaning, and morality?

Science tells us that the universe arose as a random collection of matter and energy² and we are just collections of particles. Many find this depressing.

The whole is greater than the sum of its parts.³ People mistakenly assume that scientific materialism means that everything in existence is *nothing but* collections of particles. Science does tell us that everything in the universe is fundamentally composed of only matter and energy.⁴ But science tells us a whole lot more than that.

Science explains how, when particles randomly interact, complex systems can result, and those systems often acquire novel properties not possessed by their more elementary constituents. The properties of the system as a whole, which emerge as a result of the interactions between the constituents, are frequently entirely unexpected and unpredictable—even when we know all the properties of the elementary constituents from which they are comprised. Complex systems, in turn, interact with each other and self-organize further to produce systems of ever greater complexity.⁵

Counterintuitively, the processes through which particles or constituents interact and self-organize to produce complex systems, are entirely spontaneous and unguided. Behold the wondrous creativity that results from Nature's blind tinkering!⁶

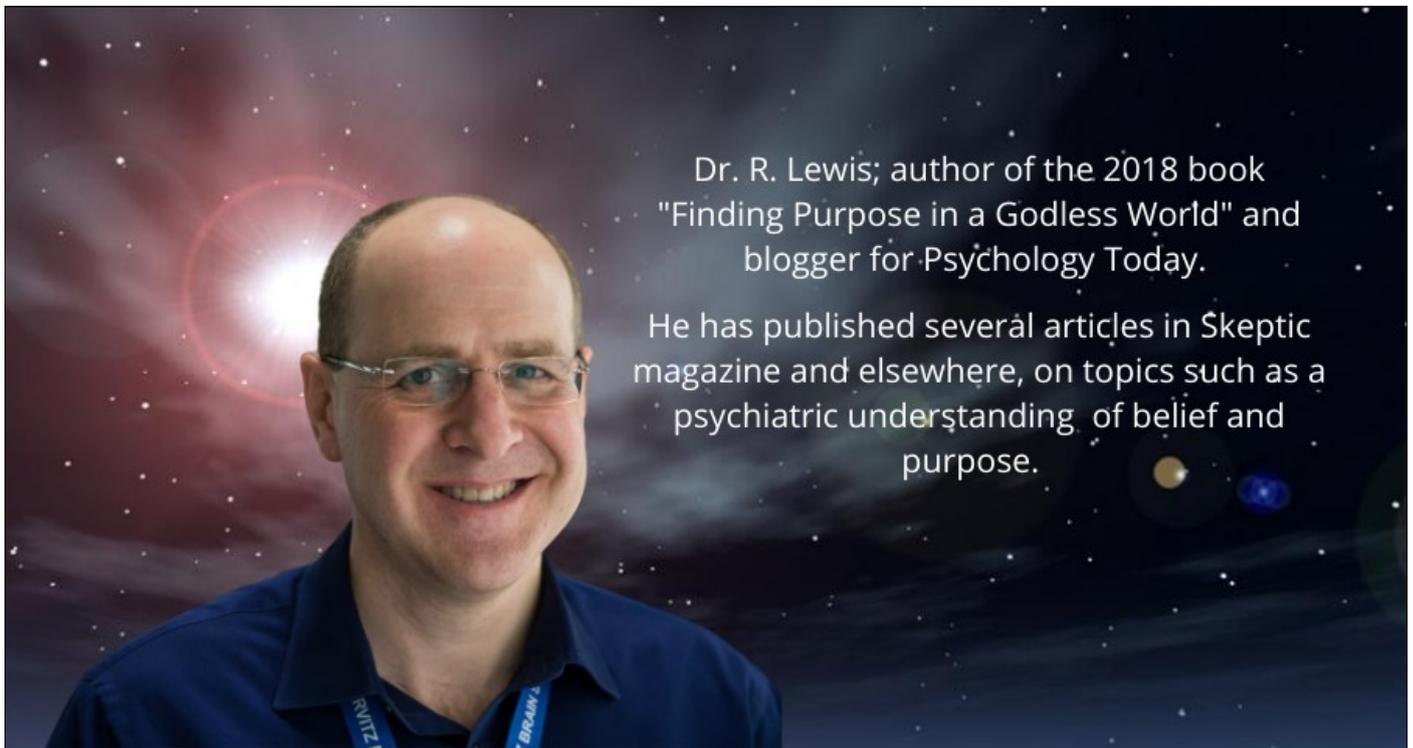
From chaos and elementary particles to societies. One of science's most important insights is that non-random processes such as self-organization and evolution can in fact arise naturally, entirely unguided, out of fundamentally random processes. Complexity and order can arise spontaneously out of chaos. This sounds mysterious and even mystical, but the mechanisms are well understood.⁷

Over eons of time, these processes led from elementary subatomic particles to atoms to molecules to complex adaptive systems—both non-living and living (i.e. cells). And from there to multicellular organisms, to complex animals, to social groups of animals (ranging from insects to primates), to societies, cultures, and economies.

You can't understand complex systems by just reducing them to their components. Though we are fundamentally "just" collections of particles, with no added ingredients (definitively none!), we cannot expect to understand ourselves in purely reductionist terms. As a psychiatrist, I must understand people not only in terms of brain chemistry and biology, but in psychological and social terms. Just as earthquakes and climate phenomena cannot be understood purely in terms of quarks or atoms.

We apply a hierarchy of sciences to study different levels of complexity: from physics to chemistry to biology to psychology to sociology, anthropology, economics, and political science. While each higher-level science is in a sense entirely dependent on and determined by the level beneath it, knowledge of the lower-level science will never be enough to explain and predict phenomena at the higher levels, even if we knew everything there is to know about the properties of the lower-level phenomena. For this reason, highly complex phenomena such as human behavior are marvelously surprising and mysterious (but mysterious does not mean mystical).

Notice that we started with only elementary particles and energy, and we added no other ingredients. We merely observed the wondrously >>>



Dr. R. Lewis; author of the 2018 book "Finding Purpose in a Godless World" and blogger for Psychology Today.

He has published several articles in Skeptic magazine and elsewhere, on topics such as a psychiatric understanding of belief and purpose.

complex phenomena that emerged from their interactions over time.

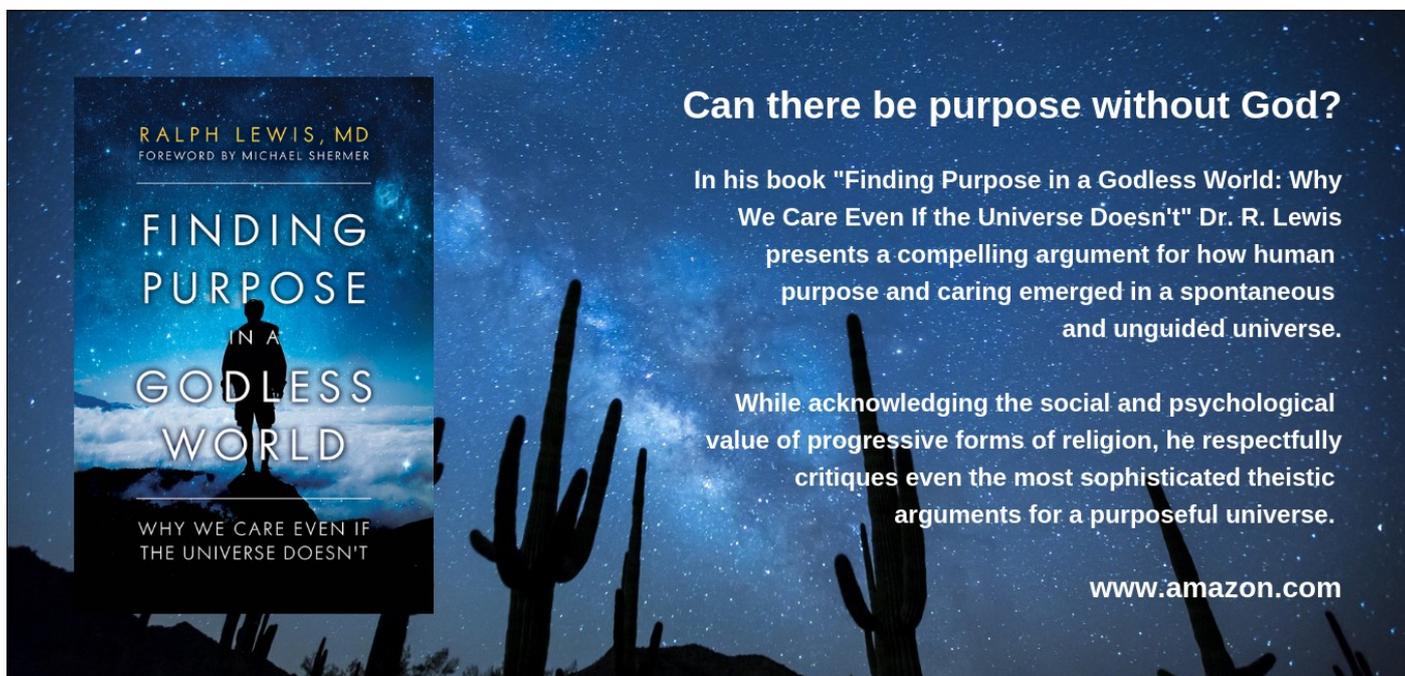
Purpose, meaning, and morality enter the universe completely naturally, emerging purely from material stuff. Purpose emerged with the origin of life, long before consciousness evolved.⁸ Purposiveness is part of what defines living creatures and is a characteristic of all living things, whether or not they possess a modicum of consciousness. Living things have a purpose in that they strive toward an aim. That aim is to keep living and to propagate themselves.⁹ Note that characteristics like purposes, aims, and effort do not imply or require having consciousness or even a nervous system. Consciousness came later in evolution, as an extension or outgrowth of purposiveness, as an adaptation enabling greater control and flexibility of behavior in the pursuit of aims. Consciousness exists in gradations of complexity in animals that possess it.

Like most forms of life, a simple bacterium has no consciousness. Nevertheless, it can detect glucose in its environment, move toward it, and ingest it to convert it into energy. A bacterium is in a basic way an intentional agent, and it makes an "effort" to achieve its purpose or aim. An intentional agent can interpret patterns as being *about* something of value to itself with respect to its environment (glucose is of value to the bacterium—it signifies or *means* energy to the bacterium).¹⁰

An agent forms an internal representation of things in its environment (in this case glucose), so as to recognize, respond to, and process that thing. The internal representation is simply an arrangement of molecules inside the organism. Note how purely mechanistic this all is— analogous to a lock and key mechanism. The internal representation has meaning and value to the organism, in the sense that it represents something good or bad for the organism— promoting or impeding its survival and propagation. (Memories in humans are internal representations. They too are molecularly encoded).

Thus purpose, meaning, and value have "entered" the universe, through purely mechanistic physical processes, as emergent properties of the complex adaptive systems that are living organisms. Once again, every step of this process of molecular self-organization and biological evolution was entirely spontaneous and unguided.¹¹

Human consciousness, motivation, and civilization. The evolution of large animals such as humans has of course been far more complex than simple organisms, but the basic mechanistic processes sculpting it are the same. And while science is only at an early stage of understanding the phenomenon of self-aware consciousness such as we humans possess, it has already generated many plausible hypotheses into how evolution could have produced such an extravagantly complexified and seemingly disembodied >>>



Can there be purpose without God?

In his book "Finding Purpose in a Godless World: Why We Care Even If the Universe Doesn't" Dr. R. Lewis presents a compelling argument for how human purpose and caring emerged in a spontaneous and unguided universe.

While acknowledging the social and psychological value of progressive forms of religion, he respectfully critiques even the most sophisticated theistic arguments for a purposeful universe.

www.amazon.com

phenomenon, applying the same kinds of processes that governed the simpler preceding stages of evolution.¹²

Sophisticated purpose-driven human behaviors are just extravagant elaborations of the evolutionary drive to survive and reproduce, as vehicles for self-propagating genes. Even the highest forms of creative accomplishment and self-actualization are indirectly and unconsciously fueled by the primary biological drives, especially the drive to reproduce (which entails impressing and attracting mates). They are also fueled by the motivation to enhance one's social role and reputation, which are drives prevalent in primates and which are in turn fueled by the primary drives of survival and reproduction. The fact that this is, beneath it all, the basis for human motivation is not only okay, it's a very good thing—for all of our well-being and flourishing.¹³

The magnificent displays of human civilization are thus the equivalent of peacock tails—extravagantly embellished products of evolution in the service of gene replication. This realization needn't demoralize us in the least: the beauty of the peacock tail is not diminished by the fact that its ultimate purpose is merely to propagate mindless, "selfish" peacock genes.

What about morality?

The natural origin of morality is not a mystery. Religion is not the source of morality (nor of purpose and meaning). Rather, religion incorporated

these natural motivational and social dispositions and coevolved with human cultures over time. Unsurprisingly, religion also incorporated our more selfish, aggressive, competitive, and xenophobic human proclivities.

Science already has a well-developed understanding of how the human moral sense evolved through entirely natural processes, and how that moral sense is far from arbitrary. Humans are both cooperative and competitive, both empathic and aggressive, but in the long term, selection pressures in human social groups tend to favor prosocial tendencies and reciprocal altruism winning out over antisocial tendencies. While different social groups and cultures have developed varied value systems and moral codes, there is a striking commonality of the human moral sense, that is shared by practically all human groups—in much the same way as all languages share basic characteristics that are determined by the hard-wiring and cognitive processes of the human brain.

The Transcendental Temptation

The desire to find purpose and meaning in a scientifically explained universe that otherwise seems "soulless" is likely the very human factor motivating spiritual seekers. People mistakenly assume that a purely naturalistic physical universe is devoid of purpose, meaning, and morality, and that only a universe infused with supernatural or paranormal magic can supply these qualities. >>>

"The imagination draws a fanciful picture of a transcendental reality, some kind of celestial kingdom. Time and again the theistic myth appeals to the hungry soul; it feeds the creative imagination and soothes the pain of living. There *must* be something beyond this actual world, which we cannot see, hear, feel, or touch. There *must* be a deeper world, which the intellect ponders and the emotions crave. Here is the opening for the transcendental impulse. Yes, says the imagination, *these things are possible*." — Paul Kurtz, *The Transcendental Temptation: A critique of Religion and the Paranormal* 14

A random world, which according to all the scientific evidence and despite our intuitions is the actual world we live in, is too often misconstrued as nihilistic, demotivating, or devoid of morality and meaning. It needn't be. The scientific worldview of an unguided, spontaneous universe can be awe-inspiring and foundational to building a more compassionate society.



This article original appeared in Psychology Today,
www.psychologytoday.com

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1. Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark* (New York: Random House, 1995), p. 12.
2. Or rather, a random quantum fluctuation, which hyper-expanded in an explosion of energy, some of which then transformed into matter.
3. Parts of this article are taken from: Ralph Lewis, *Finding Purpose in a Godless World: Why We Care Even If The Universe Doesn't* (Amherst, NY: Prometheus Books, 2018). The book is a deeper dive into questions of purpose, meaning and morality in a random, purposeless, godless universe.

See this YouTube video https://youtu.be/0Qw1_sard2g for an engaging Power Point presentation in which Dr. Lewis explains how a family health crisis focused him on coming to terms with the outsized role of randomness in life, and to wrestle with the question of whether the scientific worldview of a fundamentally random universe is nihilistic. He summarizes how science has come to view the universe and absolutely everything in it as the product of entirely spontaneous, unguided processes, and why this is actually a highly motivating realization for humankind.

Or see this link <https://youtu.be/DxfTDCRe94k> for a very brief video providing a synopsis of the book. (Surf to the website of Psychology Today to view footnotes 4-14)





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May I Believe

British freelance journalist,
Former MoD employee,
Media commentator,
and UFO expert

Nick Pope

Weighs
In

May I Believe

"Blood Brothers"

Sometimes the truth can
only be told as fiction.

<http://www.nickpope.net/books.htm>



By Maria Anna van Driel, www.nexttruth.com

Since the dawn of civilization humanity pondered over the question of where we, as a species, will go and what will happen when we get there. But it was not until the 19th century that we realized that we had the technology to do great things and to expand beyond the limits of our own imagination.

If you think that some technologies from Star Trek seem far-fetched, think again. Many of the devices from the acclaimed television series are slowly becoming a reality. While we may not be teleporting people from starships to a planet's surface anytime soon, we are getting closer to developing other tools essential for future space travel endeavors.

But where does this particular knowledge about these advanced technologies come from? Do extraterrestrial beings exchange this information via a yet unknown form of communication what vibrates through your whole body... a form of brain-to-brain communication creating holographic images in the mid-brain?

Or is there something what is that logic and

common, many of us never thought of being a plausible answer to why our species feel this almost uncontrollable urge of applying A.I. to our existence?

UFO expert Nick Pope was, from 1991 to 1994, an employee at the British Government's Ministry of Defense where he was working on real-life X-Files. He has discussed the subject on numerous TV shows, and written news stories and features about conspiracy theories (including tie-in publicity material for the second X-Files movie, and extensive material for truTV's Conspiratorium), covering topics that include JFK, the moon landings, 9/11, UFOs, and many other conspiracy theories – some well-known, others less well-known. Currently he is a freelance journalist and media commentator, and is, by the media, called "the real Fox Mulder".

■ ■ ■

To become more familiar with the work of British freelance journalist, UFO expert and former MoD employee Nick Pope you can visit his Website www.mickpope.net or read the highly interesting summaries of his books via

www.amazon.com

>>>

Welcome Nick, I appreciate the time you took for letting us peer behind the scenes in your journey as a former MoD employee, a media commentator, freelance journalist and author of several books. You have been asked this question probably a millions of times but, how did you gained your nick-name “the real Fox Mulder”?

Nick Pope: This was a joke that the British media first started. When it was revealed that I was doing this job from the Ministry of Defense (MoD) and when the British Government began to de-classify and release some of it UFO files, one of the journalists, I cannot remember who, wrote an article about me and my UFO work for the British Government and made this comparison, ‘Well, Nick must be the real Fox Mulder working on real life X-Files.’

It must have struck a cord with people because they started repeating this and I started being printed in newspapers and magazines. At first I thought it trivialized my Government work but then I thought, ‘No, you can’t be too pressures about this and just go with the joke.’ It’s good fun and that is how it all started.

TNT: With most people, when they hear your name, they automatically relate you to UFO’s, extraterrestrial life-forms and secret documents but you are also a freelance journalist. What influenced you to leave behind the MoD and step into the world of journalism?

NP: When I took early retirement from the MoD and again, this was in the same time as the British Government was releasing a lot of the files and documents relating to my old job, many journalists contacted me and wrote features about me and my Government work. Somewhere along the line one newspaper must have said to me, ‘We like to write you the articles in your own words.’ So write the articles as yourself or as an opinion piece.

Many journalists and newspapers noticed my writing style and quite liked it and I got asked to write some more. People initiated me to write about UFO’s and other mysteries and about conspiracy theories too so; I started broadening the subject that I wrote about.

I like writing the articles myself because this way I can be 100% certain that all the information is in it correct.

TNT: How did you got involved with the MoD? I mean, the moment that you stepped into that particular world?

NP: Well, my father had been a senior Government scientist. He was an aeronautical engineer but, as he became more senior in Government, he stopped doing hands on science and became a manager of scientific programs. In fact, he ended up as the deputy chief scientific advisor for the MoD. We used to have a joke that the MoD was the family firm and he said, ‘Why don’t apply to join the family firm? The work is very interesting and varied.’ He said, ‘It doesn’t as much as if you were working for the private industry, but...’ he said, ‘you find the work more interesting and you will find the subjects you are dealing with that are those sorts of things that you see on the television news in the evening. And if you want to be a part of something interesting and important, and work for your country, then you should consider in applying.’

To me that sounded fascinating! I applied and I was accepted. And in the course I have served for 21 years as a civilian employee in the MoD. I had, I think, 7 completely different jobs; I mean, I was involved in many different subjects ranging from financial policy to the counter-terrorism. So, as you can see, the MoD is a huge organization. But it is the UFO job that I am best known for.

TNT: You mention ‘science’ and ‘interesting’ in almost one sentence. How does this relate to the MoD and UFO’s?

NP: Well, the science would come in our discussions about, for example, if UFO’s are not real than what are we dealing with? Are we dealing with something from Russia or China? Or maybe a different part of our own Government that has developed something so highly classified that the information isn’t being shared with other parts of the Government? Or is it from somewhere else that we didn’t know?

Another section of the science applied is with, for example, examining photo graves and video’s of these ‘things’ and asking the questions, ‘Well, what is the aerodynamics of that in terms of propulsion, energy sources and how would this fly? If it is, for instance, Russian, have they made some quantum leap development in technology that is leaving us behind? So, the science would come in there for example. >>>

TNT: How did you get interested in researching UFO's, advanced aircrafts or unidentified objects? Did you had an experience; did you saw something or did it just come out of the blue?

NP: No, I have never seen anything myself and didn't had a particular interest in it. This might sound quite funny but I really hadn't thought about the subject at all until I was already in the MoD. I was working as a MoD employee for approximately 5 years and I already had a promotion, had done a personal job, and a job that was related to the Royal Navy.

I was due for a move and then this vacancy came up. Somebody said to me, 'Do you want this particular job? It's free if you want it.' I asked, 'What is the job about?' And the manager replied, 'Well, it's about UFO's.' I didn't have any knowledge, I didn't have any experience and I didn't have any particular leads... to me, this was just another Government position that I was put into and it happened that it would be the job that dealt with UFO's.

In the MoD you are being moved around every few years on a level transfer or a promotion and I was simply put into that job so, it was almost the case of pure change.

TNT: You say, 'if they are real'. How many, in percents, could there be real? I mean the UFO's from for instance another galaxy?

NP: Well, we received about 200 till 300 reports each year but of course, this was only a small percentage. We were only investigating sightings in British airspace. But, unfortunately, many people who saw these things didn't make a report. Either they didn't know who to contact or they were afraid of being ridiculed or disbelieved.

So, over the years the British Government, in the life-time of this program, received about 12000

cases. And this is a very approximate estimate but roughly speaking, 80% of those sightings we could explain with a high degree of confidence as misidentifications of ordinary objects and phenomena like; aircraft lights, weather balloons, satellites, meteors, etc.

In 15% of the cases we really didn't have enough information to make a definite assessment and in around 5% of the cases, even after investigation, are unknown. Now it is important to say that when a case is 'unknown' it doesn't mean that it is extraterrestrial in nature but neither did we rule out that possibility.



"The idea that advanced civilizations might construct huge machines to harness energy from a star, the so called Dyson Sphere...our technology is getting to the point where, if these things are out there, we might find them."

And as we always used to say, "we didn't need a whole lot of different cases...we only needed one case to be, to say, from another galaxy for the world in which we life changes forever in terms of who we are, what we think our place is in the wider cosmos. Now we have not proved this but there are some intriguing pieces of evidence and some fascinating cases.

TNT: The programs where you have been working on, counter terrorism, indentifying

an aircraft from another country...there could be, and I hope that you are allowed to answer this, there could be a third option for programs as such. For countries as the UK or the USA creating an advanced technology in aircrafts, that there is a shadow program behind it and is just meant for observing their own aircrafts but are that advanced that people do yet not understand its technology. For example, bending light or flying on electro-magnetic waves etc.

NP: Certainty. Yes, it is entirely possible that some of these UFO sighting could be, for example, secret prototype aircraft, missiles or drones.

The Government information is often highly classified and is sometimes deeply compartmentalized where, as we say, the left hand does not >>>

know what the right hand is doing as often in many fields in life. Particularly with these highly classified programs because, even in the same organization, you don't want to tell other people so, yes this is a possible theory that we always have to consider.

Now I think it is likely that if we have been investigating a case with which we would have been stirring up a hornets' nest - making waves- that somebody would have come to us quietly and said, 'Um, look...there is no need to dig too deeply into this one. We know about this.' And even though they didn't then tell you all the details, we would have backed off. So, this is one argument against the possibility but I can't rule it out.

It is interesting that in the United States at the moment, the senate intelligence committee is taking a look at UFO's whereby the poor information sharing between different parts of the Government is one of their big concerns. So, this is very much an issue, yes.

TNT: The poor information sharing I can understand that country A and country B does not want to share with each other their technology just in case that they need to fight with it. So, from that point of view it is a logic line of thought that people do not share this kind of information.

NP: Yes, we always have to be mindful of that possibility for sure. But we had a saying, and this is really just repeating the point I made about one case but meant to show you how we thought about this... we had a saying in relation to UFO's; "the skeptics have to be right every time, the believers need to be right once."

TNT: You think that reversed technology, like for instance the microwave in my kitchen, is coming from a kind of advanced technology people yet do not understand.

NP: I am quite skeptical about that. I think you would need to look at the history of scientific understanding and technological programs I mean, no piece of technology suddenly springs into existence. It usually evolves from a simpler version of the same device. And of course any device itself evolves from an advance in human understanding of science. For example, our understanding of the basic laws of physics, thermodynamics and motion, leads to the developments of technologies

such as the eternal combustion engine. So, one can look at the history of science and technology and if we saw something suddenly appear from nowhere with no precursor than this would be suspicious. But to my knowledge, that has not happened.

I am not one of these people that believe that the technologies we see today have been derived from crashed UFO's. Because, I think if that would be the case we would certainly, from nowhere, almost magically have some new device but I don't think history of science and technology supports that theory. But I am happy to be proved wrong I mean, it would be certainly more interesting I suppose.

TNT: How does everything that is related to your name and the work you have done, influencing your private life?

NP: Well, I suppose it had quite a profound effect. Instead of being an anonymous Government civil servant I am now somebody who is doing a lot of television shows whether it is a news report on UFO's, a documentary series on the unexplained or whether it is acting as a consultant or spokesperson to science fiction films and TV-series. I am now much more of a public figure than I was. Sometimes when I am in the grocery store somebody will come up to me and say 'hello' and ask me to have a photo and maybe tell me a story about something strange that they have seen or experienced. So, it had a profound effect, yes.

TNT: Not only are you a journalist and related to the MoD and unexplained phenomena in the skies but you also are an author. I have read that your latest book is 'Blood Brothers' has undergone a kind of a security check. Since when does a book undergo a security check? Have you been written something that, perhaps, was a bit too revealing?

NP: Well, there are strict rules that deploy when Government employees, who have been involved in highly classified work, write books. I take my security ought very seriously. I only discussed Government matters that the Government itself have declassified and released, but you still have to be carefully particularly with the work of fiction. It is sometimes difficult to remember whether you have come across a piece of information in a newspaper or in classified files. >>>

So, when Government employees write books whether it is non-fiction or even a work of fiction, we generally have to send the manuscript back to the Government and ask, 'Read this and check that I have not accidentally put classified information in.'

I have written several books, some non-fictional books about UFOs which are based on my Government work but Blood Brothers is a thriller.

It is a fictional book about the Intelligence Agencies and terrorism.

And my last posting in the MoD I was in security so, counter-terrorism was a big part of everything we did. It was particularly important that I made sure that I had not inadvertently included something that should not be in a book that anyone can pick up and read.

Read further on page 40

Gravity

NASA Space Shuttle Explorer, commanded by veteran astronaut Matt Kowalski, is in Earth orbit to service the Hubble Space Telescope. Dr. Ryan Stone is aboard on her first space mission, her job being to perform a set of hardware upgrades on the Hubble. During a spacewalk,

Mission Control in Houston warns Explorer's crew about a rapidly-expanding cloud of space debris, ordering the crew to return to Earth immediately. Communication with Mission Control is lost shortly thereafter as more communication satellites are knocked out by the debris.

After an attempt at radio communication with an Inuit on Earth, Stone resigns herself to her fate and shuts down the cabin's oxygen supply to commit suicide.

As she begins to lose consciousness, Kowalski seemingly enters the capsule; scolding her for giving up, he tells her to rig the Soyuz's soft landing rockets to propel the capsule toward Tiangong before disappearing.

TNT: I have read that some things that you have written in your book actually did happen. Or at least some of the things crossed your desk.

NP: Now it is confusing because I have written 3 non-fiction books about UFO's and those were very closely based on my Government's work and of course on the MoD files that I mentioned that are now declassified and released. I then wrote 2 science fiction novels about an alien invasion. But again, I included some cases from the MoD's UFO files as well so; it was science fiction whereby some of it was based on real cases and real Government procedures.

With *Blood Brothers*, again, telling the story of Intelligence Agencies and Special Forces hunting down terrorists... although it is a work of fiction it was very closely based on real Government policy, procedures and everything from the guns that they have used to the tactics so, it is particularly important not to reveal anything that would help people with bad intentions.

I did not complain that I had to get security clearance for these books. It is part of the process and I was happy to comply with that.

TNT: You have worked as a MoD employee for 21 years. That is a tremendous long time. I can imagine that you have grown into the company's activities and the people who worked there or are still working there. Then that day comes that you stop working there, you retire and you start living as a civilian. How did you experience this transformation after all these years?

NP: It was a very difficult transition to make. I have done, as you say 21 years, and I had been involved in everything from the UFO job to counter-terrorism policy. I had visited some interesting places like Kosovo and Iraq, I had a top secret security clearance, I was attending meetings and we would have people from MI5 and MI6 coming in discussing a wide variety of topics...and then, the next day, I am sitting at home

almost thinking, 'Well, now what do I do'. It is indeed a difficult transition.

I think the one thing that helped was that many of my friends were still in the MoD and in other parts of the Government, I used to see them socially and talked about the old days, what was going on, who was doing what, which person had been promoted and which subjects were currently causing a lot of controversy and difficulties. So, for a while, even though I had left, it was almost like half of me was still back there.

And I am sure it is the same with many people in many different walks of life. For a while you are still in the same social circles. It is, as they say, if you are not working there full-time it is almost like working there part-time.

TNT: I suddenly have to think about the movie 'Man in Black'. The scene in where the actors look up to the starry sky, thinking about that moment of going from active duty to civilian life. Is that something that you also have done...looking up to the sky and think, 'what is out there?'

NP: Yes, I think that. I am very fortunate that I live in the United States, in Tucson, Arizona and we have wonderful

big open skies here. You can see the stars and of course, one cannot help to look up and wonder what might be out there. And with the pace of the scientific discovery at the moment, telescopes, whether they are optical- or radio telescopes, are looking further and further out, further back in time, could listen for signals from other civilizations. And it is just a matter of time before we make a scientific discovery that proves definitively that we are not alone in the universe. And I wonder, when that moment comes, how profoundly it might affect every aspect of human life...politics, religion, economics, science technology, philosophy...everything.

TNT: I don't know which kind of language an extraterrestrial life form is speaking but do you >>>



"My hope is that, if we are invisited, now or some point in the future, that the extraterrestrials will come here as scientists, as explores and anthropologists."

think that we will make contact in the near future with an alien life form without making a direct or biological contact. Do you think that it is possible within, let's say, 10 years?

NP: Yes, I think it is entirely possible and it might come about with one of these new and powerful radio telescopes. They might pick up a beacon or a signal. Or it might be that we discover unequivocal evidence of a civilization that we find, for example, what is called a mega structure.

The idea that advanced civilizations might construct huge machines to harness energy from a star, the so called Dyson Sphere, and that our technology is getting to the point where, if these things are out there, we might find them. But it leads to an interesting possibility, as you say in your question, that we might discover this but without face-to-face contact. But if we pick up a signal, one of the most likely possibilities is that we would not be able to decode it. So, in a sense, we would have one piece of information and one piece of information only. And that would be that there is another civilization out there.

But perhaps we would know nothing about them and that would be in a sense even more frustrating than not knowing at all. You would know that they are there but you would not know anything about them.

TNT: I am thinking about the movie 'Arrival' in where huge squidly aliens are communicating with an inky circle what shows a complex language. So, I can understand the frustration.

NP: Two of the best science fiction movies out there are "Arrival" and "Contact". And it is not surprising that both of them have, at the heart of the film the question, how could we meaningfully communicate with these civilizations. In 'Arrival' it's a very interesting philosophical debate about the subtleties of languages, how language conveys thought and meaning. For example in our own language, the subtle difference between a

"weapon" and a "tool". So, there is the positional for misunderstanding – miscommunication which is why I think that films like 'Contact' and 'Arrival' are so clever.

TNT: Nick, I received the following question from the audience. What is your personal opinion about the idea that alien life forms are using us as a kind of cattle and is feeding from us in any way possible...for energy or like in the movies that they eat us? What is your personal idea about a theory or an idea like that?

NP: It's certainly possible but I think that one could say that, in the absence of definitive evidence, almost anything is possible in relation to this question. My own hope is that, if we are invised, now or some point in the future, that the extraterrestrials will come here as scientists, as explores and anthropologists, not as conquerors or as exterminators or as exploiters of resources.

Another point is that, if we are not alone in the universe, it is very unlikely that there is just one other

civilization. If we are not alone there are probably countless other civilizations so, there may be many, many different agenda strategies.

TNT: Now correct me if I am wrong but are saying is that this fear of the threat of an invasion is not real. That they are more like scientists or like teachers?

NP: Well, I hope so. But this is just speculation I mean, when we discuss aliens, of course, we can only apply our own culture and knowledge and understanding of human history. We inevitably take an anthropocentric view. When we look at human history it shows that when one group of people encounter another very often it doesn't end particularly well and the stronger group often exploits or enslaves or conquers the weaker group.

If we apply this philosophy and speculate about extraterrestrials, this is, I am sure of why a concept of alien invasion is so deeply imbedded in >>>

**"My father said to me;
Why don't apply to join
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you see on the television
news in the evening.
To me that sounded
fascinating!"**

our consciousness because it is our own history. It is the tribe from over the next hill coming and attacking. So, it's hardwired in our understanding of who we are and what makes us human.

TNT: Grabbing back to your books. You have written books about UFO's and counter terrorism which are real events or at least very, very near to real events. Are you writing at the moment, or are you planning to write new books? And which topics will they contain?

NP: At the moment I am not writing a new book but of course this may change very quickly. The main focus of my attention at the moment is my television work. Unfortunately the filming is still paused because of the corona virus but as soon as we are back to normal or close to it, it then will resume. I think I will do my next television interview in about 10 days time so things are slowly getting back. But I don't rule out the possibility of writing another book in the future but at the moment television work is my focus.

TNT: You say within 10 days...where can we find that and which topics are you discussing in the series?

NP: Well, I am not sure that I am supposed to make any announcement until something is broadcast. Not because it is particularly secret but just because normally in the television industry they don't want you to make an announcement until the network makes an announcement. But you can see me regularly on TV-shows such as 'Ancient Aliens', 'UFO the lost evidence' and 'The Unexplained' and many other different shows. And of course not only documentaries but sometimes, when a news story breaks, I will go on and discuss it on a TV-news show. So, I am doing regular work there to keep the subject in the public.

TNT: It seems that we have to hold on to our curiosity and regularly visit your website to see when there is an announcement of your new series. In the meanwhile we can read your books, your articles and watch other documentaries in where you perform.

Nick, for young people who have this strong urge to work with the MoD and solving some of the mysterious cases, or young authors, which advise can you give them?

NP: Well, I think that the British Government, unfortunately, terminated their UFO program at the end of 2009. But even if you are in a country where a Government is still investigating UFO's, your chances of getting that one particular job out of all the thousands of other jobs is very, very small.

So, what I would say to people is; don't expect to end up investigating UFO's for the Government. If you are interested in Government work whether it is defense, security or intelligence, then do that for its own sake but don't expect to be working on UFO cases. If you are interested in UFO's you are probably better off joining a civilian research organization like the Mutual UFO Network or one of the many different groups in different countries that do this. So that's one piece of advice.

And for writing ...well of course anyone can write you just have to, well I was going to say, pick up a pen but I suppose that is sort of a problem these days, so, sit at your computer. The single biggest piece of advice I can give to anyone who wants to become an author is to read as much as you can. I don't know any author who is not a voracious reader. I think the more you read the more you understand how a good author will convey their ideas to the readers. So if you want to write, read!

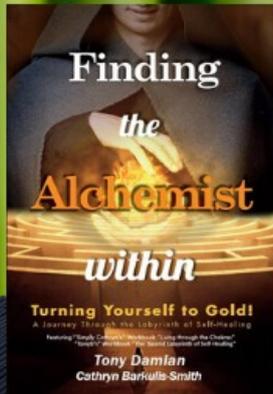
TNT: Nick, thank you for giving us the change of briefly peering in your life as a former MoD employee and currently as a freelance journalist. Can you tell us where we can find more information about your articles, about your books and maybe where people can ask you questions if they have?

NP: Certainly. My website is www.nickpope.net and on the front page there is a link to my twitter and Face Book accounts. But the new announcements I make on twitter. My twitter handle is **@nickpopemod** which stands for the 'Ministry of Defense'. But you can read it all on my website **nickpope.net**

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&

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A Dyson Sphere; Why Would Anyone Construct Such a Bizarre Monstrosity?

By Maria Anna van Driel, www.nexttruth.com

Are you a holographic projection build up from Dirac (bi) spinors in an ancient matrix or are you consisting from...um, *real* atoms? Well, it might very well be that, like the ancient Egyptians, supposedly, have maintained the magisterial pyramids built by previous nations, we are building, maintaining, a Dyson sphere around an already existing one built by those we have become to know as “aliens” or “extra-terrestrial life forms” existing in a pre-eminent system millions of light years remote from the planet we live on. Earth!

It was only recently that Space-X launched a large group of satellites into an orbit around the planet we live on. Many of us, including myself, have witnessed this miraculous sighting in the clear night skies.

“Starlink” is this satellite constellation, constructed by Space-X to provide satellite internet access, being called. The constellation so is being said, will consist of thousands of mass-produced small satellites in low Earth orbit (LEO), working in combination with ground transceivers. Space-X also plans to sell some of the satellites for military, scientific and/or exploratory purposes. (Source: Wikipedia)

But it might be plausible that, without our direct awareness, we, as a species inhabiting this planet, are applying this form of technology to our daily existence because it is deeply connected with our future selves. Hot-wired in our human history and DNA, so to speak, while we are walking this path of civilizations that have lived our present already or...is here still.

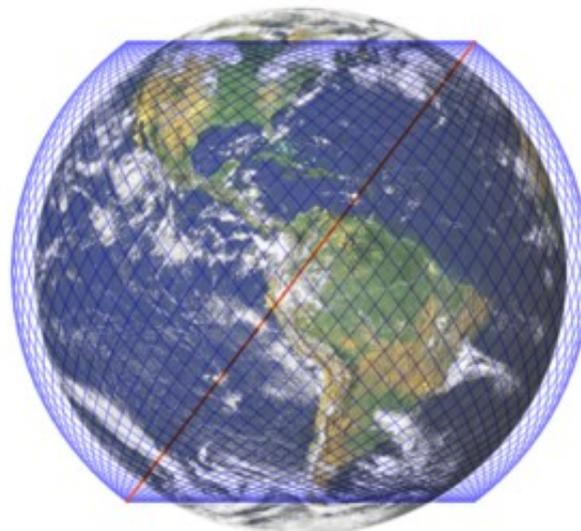
What is a Dyson sphere?

From a theoretical point of view this is being

thought of as an advanced mega-engineering project that encircles a star with platforms orbiting in tight formation and is considered as the ultimate solution for living space and (infinite) energy production, providing its creators ample surface area for habitation and the ability to capture every bit of solar radiation emanating from their central star.

“I predict that the domestication of biotechnology will dominate our lives during the next fifty years at least as much as the domestication of computers has dominated our lives during the previous fifty years.” Freeman J. Dyson, 2007.

Starlink Initial Phase
1,584 satellites into 72 orbital planes
of 22 satellites each



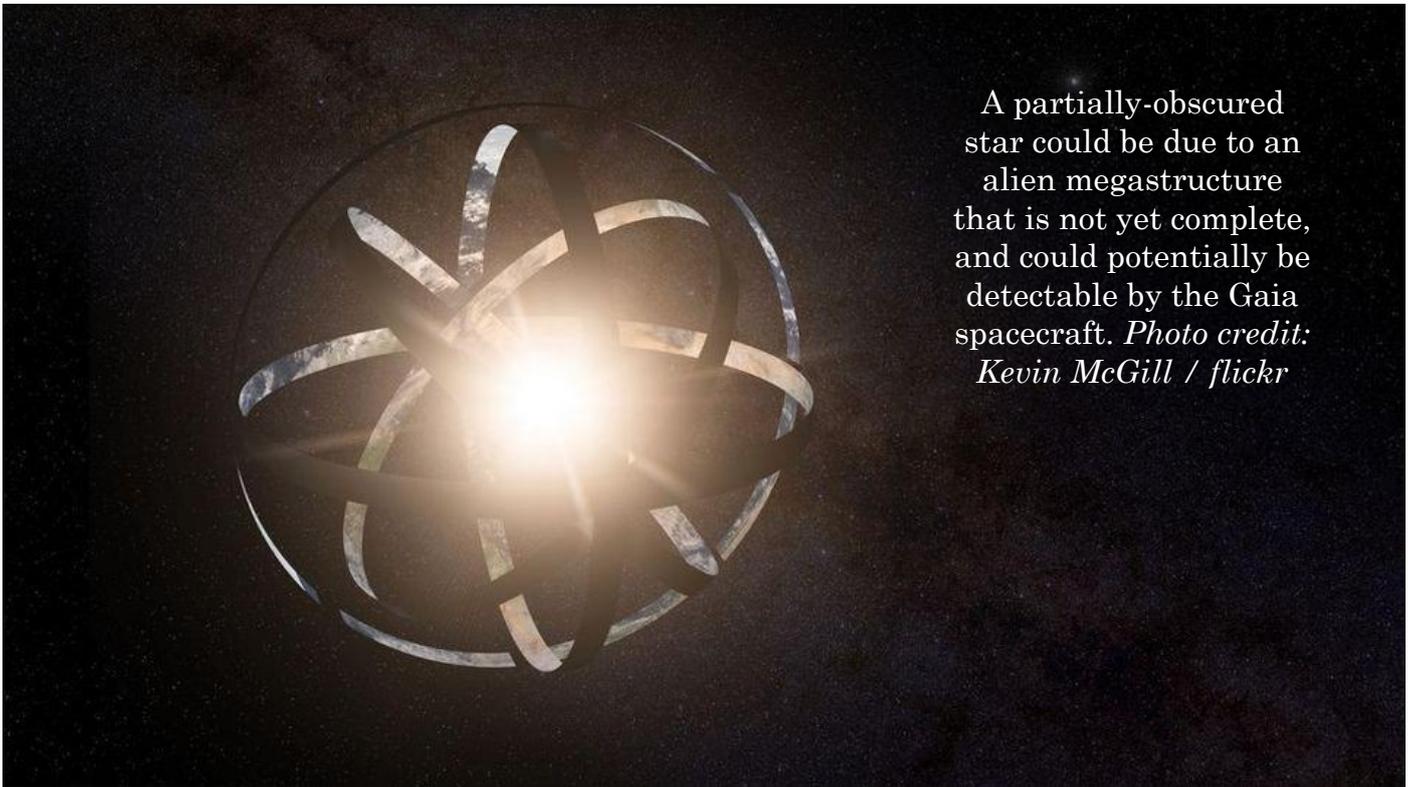
“The Starlink constellation, phase 1, first orbital shell: 72 orbits with 22 each, 1,584 satellites at 550 km altitude.” Source: Wikipedia

It was in the year 1960 when the famed theoretical physicist Freeman Dyson made a radical proposal. In a single paged paper titled “Search for Artificial Stellar Sources of Infrared Radiation” he suggested that advanced extraterrestrial intelligences (ETIs) could be found by looking for signs of artificial structures so large, they encompassed entire star systems. But you only have to read

the abstract to catch a whiff of the marvelous piece of inventive, but grounded speculation that unfurls in this single page article what has being published in (AAAS) Science.

www.science.sciencemag.org

“If extraterrestrial intelligent beings exist and have reached a high level of technical development, one by-product of their energy metabolism is likely to be the large-scale conversion of starlight into far-infrared radiation. It is proposed that a search for sources of infrared radiation should accompany the recently initiated search for interstellar radio communications.” >>>



A partially-obscured star could be due to an alien megastructure that is not yet complete, and could potentially be detectable by the Gaia spacecraft. *Photo credit: Kevin McGill / flickr*

Since then, many scientists have come up with their own ideas for possible megastructures.

Can we build a Dyson Sphere?

With that being said, can we can say, with some caution, that we are building a Dyson Sphere what can be considered as a, for us, prototype of an advanced technology what is, in this theorem, already build and operative in a future galactic system? If a theorem as such is closer to any reality you are familiar with, it would mean that we, most likely, are trying to *catch-up* with our future selves by applying the latest Artificial Intelligence to our existence. A technology possessing an infinitive energy source and showing an effect in 3D photon trapping (trapping a photon inside a three-dimensional 'prison cell' surrounded by mirrors), realizing the photonic light to accelerate and generate its own charge what in turn generates a infinitive relativistic wave spawn from ordinary photon(s).

Through the center-of-mass energy of the system of two photons colliding two vibrating light waves, containing identical frequency which interfere with one another while traveling opposite directions along the same medium, new matter in the form of a short lived (virtual) Euclidean vector having mass but lacking kinetic energy (KE), has the prospect to arise while it is generated in an instable standing wave pattern.

Let's call this virtual Euclidean vector the 'Axion-like particle'.

If a behavior as such can be realized in a chaotic system in where a gravity wave causing a perturbation around a stationary state, in which there is no velocity, it is almost a logical line of thought that this is providing the opportunity of storing, converting and projecting the information absorbed as (4D electro) holographic images which can be build up (re-build) from Dirac (bi) spinors containing the, transferred by the neutrino, primordial code what is captured and 'brought back' by the retracted frequency of the Axion-like particle caused by the attractive pull of its own implosion. However, the detailed nature of this particle still remains elusive.

Phew...tough stuff!

But, when looking at, among others, the "Axion Dark Matter eXperiment" (University of Washington) or CERN's NA64 team, who is targeted an unexplored two-dimensional area for axions and axion-like particles, not to be ruled out entirely as a possible future for us to live in.

The truth is stranger than the strangest fiction!

What the kick-off for the universe we move in was, that is indeed still a tricky question? >>>

whereby multiply but plausible answers, and theories, are directing in several directions. And regardless from which angle one is viewing this question, in some enigmatic way; many end up with the mysterious behaviour of the cosmological 'energy converters', or a 'universal accelerator' as the Deutsches Elektronen-Synchrotron (DESY), Hamburg (Germany) is calling it in one of their press releases.

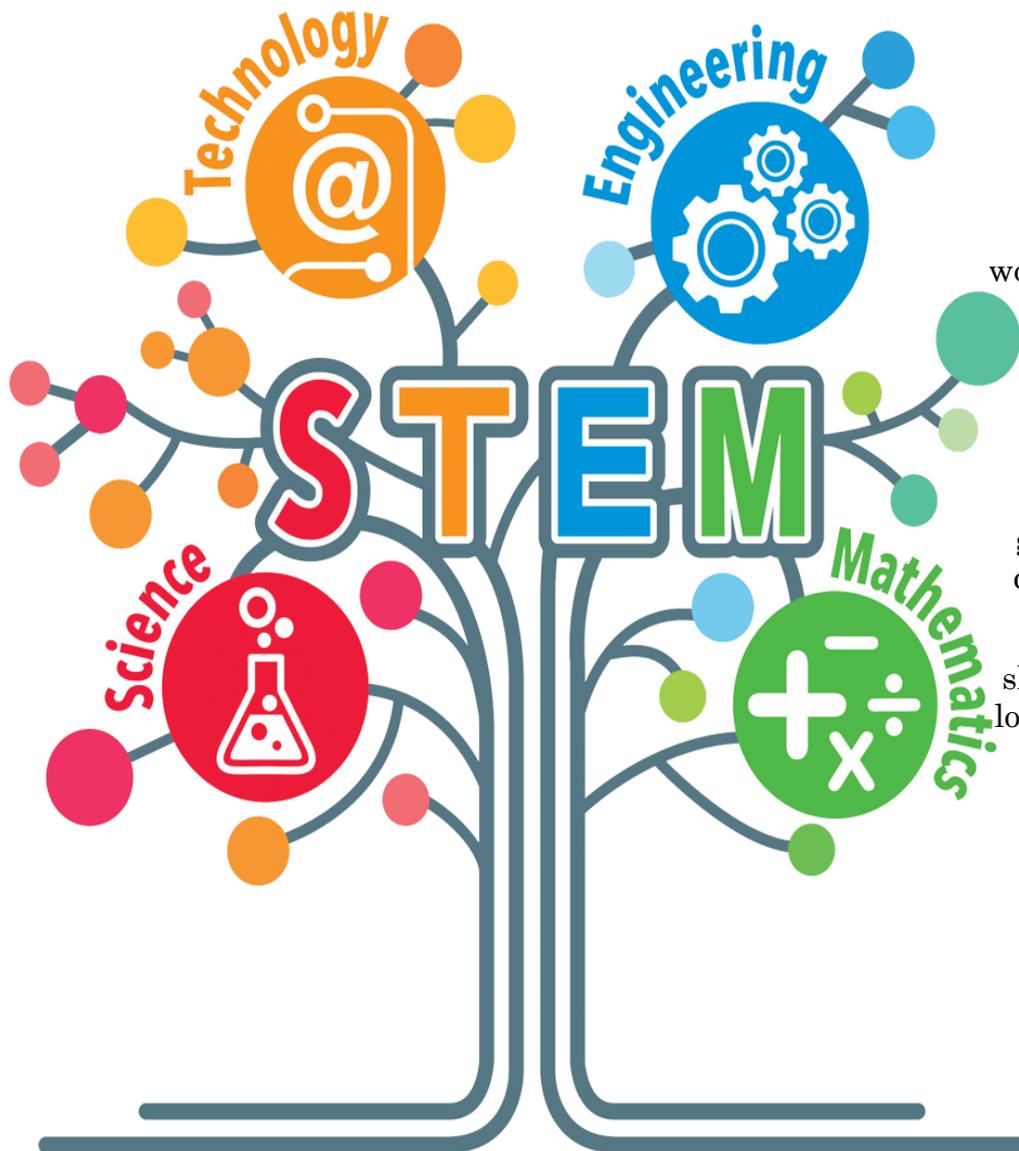
Anyway, there is none who can say with 100% certainty what their true purpose is; it is an almost logical line of thought that these mysterious dark areas do have a purpose. Nature has yet not to create 'something' what has no meaning or cannot conserve life.

This seems to include both dark matter and dark energy as well.

Even though it is being said that that the Dyson's Sphere's were suggested as a way of giving scientists engaged in the search for Extra-Terrestrial Intelligence something to look for, there could be this quite logical and simple explanation for the reality and existence of these Dyson spheres.

The famous equation of Einstein $E=mc^2$ seems to be indeed the secret of the stars but the question in this is...which star and what are its coordinates.

■ ■ ■



In an ever-changing, in-ccreasingly complex world, it's more important than ever that our nation's youth are prepared to bring knowledge and skills to solve problems, make sense of information, and know how to gather and evaluate evidence to make decisions.

These are the kinds of skills that students develop in science, technology, engineering and math, disciplines collectively known as STEM.

Source

www.ed.gov/stem

Cosmic Cataclysm Allows Precise Test of General Relativity

By the Max-Planck Institute for Physics, www.mpp.mpg.de

In 2019, the MAGIC telescopes detected the first Gamma Ray Burst at very high energies. This was the most intense gamma-radiation ever obtained from such a cosmic object. But the GRB data have more to offer: with further analyses, the MAGIC scientists could now confirm that the speed of light is constant in vacuum – and not dependent on energy. So, like many other tests, GRB data also corroborate Einstein’s theory of General Relativity. The study has now been published in *Physical Review Letters*.

Einstein’s general relativity (GR) is a beautiful theory which explains how mass and energy interact with space-time, creating a phenomenon commonly known as gravity. GR has been tested and retested in various physical situations and over many different scales, and, postulating that the speed of light is constant, it always turned out to outstandingly predict the experimental results.

Nevertheless, physicists suspect that GR is not the most fundamental theory, and that there might exist an underlying quantum mechanical description of gravity, referred to as quantum gravity (QG). Some QG theories consider that the speed of light might be energy dependent. This hypothetical phenomenon is called Lorentz invariance violation (LIV). Its effects are thought to be too tiny to be measured, unless they are accumulated over a very long time.

Gamma-ray burst as benchmark

So how to achieve that? One solution is using signals from astronomical sources of gamma rays. Gamma-ray bursts (GRBs) are powerful and far away cosmic explosions, which emit highly variable, extremely energetic signals. They are thus excellent laboratories for experimental tests of QG. The higher energy photons are expected to be more influenced by the QG effects, and there

should be plenty of those; these travel billions of years before reaching Earth, which enhances the effect.

GRBs are detected on a daily basis with satellite borne detectors, which observe large portions of the sky, but at lower energies than the ground-based telescopes like MAGIC. On January 14, 2019, the MAGIC telescope system detected the first GRB in the domain of teraelectronvolt energies (TeV, 1000 billion times more energetic than the visible light), hence recording by far the most energetic photons ever observed from such an object. Multiple analyses were performed to study the nature of this object and the very high energy radiation.

Foothold for future test on quantum gravity

A careful analysis then revealed no energy-dependent time delay in arrival times of gamma rays. Einstein still seems to hold the line. “This however does not mean that the MAGIC team was left empty handed”, said Giacomo D’Amico, a researcher at Max Planck Institute for Physics in Munich; “we were able to set strong constraints on the QG energy scale”. The limits set in this study are comparable to the best available limits obtained using GRB observations with satellite detectors or using ground-based observations of active galactic nuclei.

In contrast to previous works, this was the first such test ever performed on a GRB signal at TeV energies. With this seminal study, the MAGIC team thus set a foothold for future research and even more stringent tests of Einstein’s theory in the 21st century. Oscar Blanch, spokesperson of the MAGIC collaboration, concluded: “This time, we observed a relatively nearby GRB. We hope to soon catch brighter and more distant events, which would enable even more sensitive tests.”

■ ■ ■

Artist's impression of a gamma
ray burst observed by the MAGIC
telescope system and satellite
observatories
(Image: Superbossa.com
and Alice Donini)



The Moon is an Ideal Spot for a Gravitational Wave Observatory

By Matt Williams, www.universetoday.com

In the coming years, multiple space agencies will be sending missions (including astronauts) to the Moon's southern polar region to conduct vital research. In addition to scouting resources in the area (in preparation for the construction of a lunar base) these missions will also investigate the possibility of conducting various scientific investigations on the far side of the Moon.

However, two prominent scientists (Dr. Karan Jani and Prof. Abraham Loeb) recently published a paper where they argue that another kind of astronomy could be conducted on the far side of the Moon – Gravitational Wave astronomy! As part of NASA's Project Artemis, they explain how a Gravitational-wave Lunar Observatory for Cosmology (GLOC) would be ideal for exploring GW in the richest and most challenging frequencies.

The paper, titled "Gravitational-Wave Lunar Observatory for Cosmology," recently appeared online and is being considered for publication. Whereas Dr. Karan Jani is an astrophysicist from Vanderbilt University and a member of the LIGO Scientific Collaboration, Prof. Abraham Loeb is the Frank B. Baird Jr. Professor of Science at Harvard University and the director of the Harvard-Smithsonian Center for Astrophysics (CfA).

Originally predicted by Einstein's Theory of General Relativity, GWs are essentially ripples in space-time caused by the merger of massive objects like black holes or neutron stars. The first confirmed GW event happened in 2016, where scientists at the Laser Interferometer Gravitational-wave Observatory (LIGO) announced GWs coming from Markarian 231 – a binary system of black holes over 1.3 billion light-years away.

Since then, with more detectors coming online, collaborations between observatories around the world, and improvements in the technology and methodology, astronomers have detected a total of 56 candidate events. Using these events, astrophysicists have been able to conduct tests of General Relativity which have helped.



"The time is ripe to explore what science programs could be best pursued from the lunar surface." - Professor Abraham Loeb

What's more, astronomers have found many instances where GW astronomy could succeed where conventional methods fall short. As Prof. Loeb told Universe Today via email:

"Traditionally astronomy was all about detecting light by telescopes. Some environments, like the nuclei of galaxies or star-forming regions, are obscured behind opaque clouds of gas and dust. Others, like black holes with no matter around them, do not emit any light. Gravitational waves offer a glimpse at these environments that we could have never probed before. Their strongest sources are mergers of black holes, which provide a new testbed for Albert Einstein's theory of gravity because they are the most extreme structures of spacetime that the theory predicts."

The concept at work here is similar to what's involved with space telescopes, or what >>>

Illustration of Artemis astronauts on the Moon. *Photo credits: NASA*



astronomers hope to accomplish with lunar radio astronomy – i.e. operating beyond interference. For space telescopes – like *Hubble*, *TESS*, *Gaia*, and others – operating outside of Earth’s atmosphere means being able to gather light that is not subject to wavelength distortion without the need for adaptive optics.

The situation is similar when it comes to interferometers and gravitational waves. Basically, an interferometer relies on two or more merging sources of light in order to create an interference pattern, which is then analyzed by photodetectors to note any sudden changes. When an interferometer intercepts gravitational waves, the ripples cause measurable distortions that scientists use to determine the nature and distance of the source.

Unfortunately, interferometers have to be extremely sensitive since gravitational waves are very difficult to detect, which makes them vulnerable to interference. For one, the arms of a detector need to be kept in a state of vacuum in order to eliminate possible interference for air molecules and seismic events (aka. earthquakes) will also result in false positives.

But on the Moon, which is geologically inactive and there is no atmosphere to speak of, interference would be virtually non-existent.

As Prof. Loeb explained:

“The Moon has an extremely low seismic noise, since it has no geological activity. This allows it to probe a frequency range of gravitational waves that is two orders of magnitude smaller than can be accessed from Earth. The situation is analogous to building a radio telescope instead of an optical telescope. The Moon also has no atmosphere, so its surface already has levels of vacuum far lower than the vacuum tubes of the LIGO and Virgo instruments on Earth.”

As for what a Gravitational-Wave Lunar Observatory for Cosmology (GLOC) on the far side of the Moon could reveal, that’s where things get really interesting. On Earth, scientists are limited when it comes to what kinds of mergers they can detect. On the Moon, says Loeb, an observatory could access domains that GW astronomers currently have no insight into:

“The new frequency range allows us to detect intermediate-mass black holes (between stellar-mass objects formed from the collapse of stars – currently probed by LIGO-Virgo and super-massive objects formed at the centers of galaxies – to be probed by the space observatory LISA) through most of the volume of the observable universe.” >>>

Already, scientists have proposed using gravitational waves to study the interiors of black holes, supernovae, locate dark matter, and measure the expansion of the cosmos (aka. the Hubble Constant). This last possibility is especially tantalizing since scientists have been gradually reducing the level of uncertainty they have with their measurements for over a century.

At the same time, scientists have had to deal with a discrepancy (known as the “Hubble tension”) where the reduction of uncertainties with cosmic expansion has not been paralleled by a reduction between different measurements. “The orbit of the Moon allows GLOC to pinpoint the host galaxies of merging black holes and neutron stars,” added Dr. Jani. “This is crucial to solving the Hubble tension.”

Another compelling reason why Dr. Jani and Prof. Loeb recommend the creation of GLOC is because of NASA’s (and other space agencies) plan for lunar exploration in the coming years. In addition to sending astronauts back to the Moon for the first time since the Apollo Era (by 2024), NASA also hopes to create a program of “sustainable lunar exploration” beyond that.

This will include an orbiting space habitat that will allow for regular trips to the lunar surface

(the Lunar Gateway) and infrastructure on the surface that will facilitate long-term exploration missions (the Artemis Base Camp). For this reason, says Loeb, now is the perfect time to contemplate the kind of infrastructure we want to build there based on what would offer the best scientific returns:

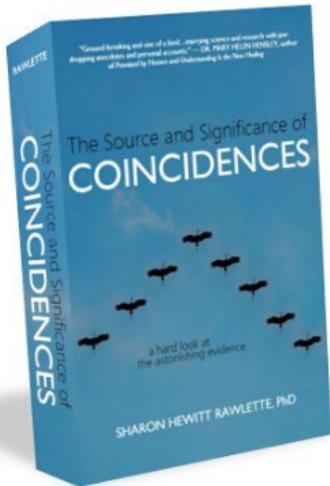
“The time is ripe to explore what science programs could be best pursued from the lunar surface. In the past, scientists contemplated radio, UV and X-ray telescopes because of the lack of an atmosphere. We are suggesting an exciting new possibility for a large scale science project, which we hope the scientific community will endorse.”

This raises another exciting aspect about plans for space exploration in this decade and the next. In addition to going back to the Moon to stay in the 2020s and building the infrastructure that will take to Mars by the 2030s (and beyond), future missions will enable the types of scientific experiments that are challenging here on Earth. In this respect, exploring more of our Solar System will allow to explore more of the Universe.

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This article first appeared on the website of Universe Today, www.universetoday.com





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HOW DOES THE BRAIN

MAKE NEW MEMORIES?

Dr Amy Reichelt
Lecturer in Psychology
School of Health and Biomedical Sciences



The Devil Rode Out – The Satanic Ritual Abuse (SRA) Scare

By Professor Graham Seal, www.gristlyhistory.blog

At the end of the 1970s and the start of the 80s, North American psychiatrists began reporting adult, mainly female, patients claiming ritual torture, sex abuse and Satanism in childhood. These people often exhibited Multiple Personality Disorder (MPD), an ability to shift from one personality to another due to, some psychiatrists hypothesised, their need as victims to create 'safe' personalities without memory of the abuse. It was only when these memories were elicited through various forms of 'therapy', that the 'facts' came out. These 'recovered memories' were soon promoted to the status of 'Repressed Memory Syndrome'.

In 1980 one of these women, a Canadian named Michelle Smith, published a book in conjunction with her therapist, a Dr Lawrence Padzer. Titled *Michelle Remembers*, the book documented Michelle Smith's memories of childhood Satanic abuse, as 'recovered' through her therapy with Padzer. It became a best-seller in the United States and also in the United Kingdom, influencing police and social workers in both these countries, and elsewhere, including Australia. In 1981, Padzer, a fervent Christian, coined the term 'ritual abuse', by which time he had become a sought-after 'authority' and proselytiser of the subject.

In 1983, Satanic Ritual Abuse (SRA) allegations were first heard in the USA by Kenneth Lanning and others at the FBI Behavioural Science Unit, part of the FBI Academy in Virginia. At first, Lanning and officers involved in the investigation of child sexual abuse took these reports seriously. However, as he points out in his 1992 'Investigator's Guide to Allegations of 'Ritual' Child Abuse', while there were many claiming to be victims of SRA 'there is little or no corroborative evidence'.

In North America there were many cases involving SRA, beginning in the early 1980s. One of the best-known and notorious of these was the McMartin Pre-School Case in which many allegations were made against staff of a Californian child-care facility.



Albrecht Dürer, Knight, Death and the Devil (German: Ritter, Tod und Teufel), 1513.

Between 1983-87, the subsequent legal proceedings found no evidence against the accused. It was said then to have been longest and most expensive legal debacle in US history.

A long-running ritual child abuse case in Saskatchewan, Canada, ended in 1996 with a mixed verdict that found some sexual abuse occurred. A professor of psychology called in to analyse the interviews with the child victims described the entire investigation as 'a witch-hunt'. The judge pointed out that the prosecution had no physical evidence of the accused being involved with 'the Devil's Church'.

The absence of physical evidence for allegations of SRA is a constant thread in a number of official investigations carried out around the world. In Lanning's thorough analysis of the considerable number of cases already reported at that time, the author and other investigators were unable to substantiate even one verifiable claim of satanic murder. >>>



"Engraving by Henry de Malvost in the book *Le Satanisme et la Magie* by Jules Bois depicting a Black Mass"
Photo source: Wikipedia

Much the same results came from other studies, including one in 1994 by the United States National Center on Child Abuse and Neglect that surveyed nearly 7000 clinicians and therapists working in the field and almost 5000 agencies involved in relevant activities. In over 12000 cases of suspected SRA, only one was proven to have any organised satanic content, though some incidents involved secondary aspects of ritual abuse. Especially significant was the finding that most individual clinicians and most agencies reported only one or two alleged SRA cases, while a small percentage of individuals and agencies reported hundreds.

There was no correlation between stories told by children of alleged SRA experiences and the 'suppressed memories' of those who claimed SRA in their childhoods. The report speculated that therapists were creating childhood abuse memories by their therapy techniques. There was no evidence of child pornography with satanic themes in the United States, nor of other alleged satanic activities, such as generational Satanists.

The study did, however, uncover evidence of Christian ritual abuse of children, practised mainly by a few fundamentalist sects, including 'beating the devil' out of a child as part of an

exorcism and resorting to prayer rather than, seeking medical help.

In 1991 the Utah State Legislature instituted an Inquiry into allegations of SRA occurring in that state. This was in response to a newspaper's poll finding that over 90% of Utah residents believed in SRA, allied with increasing allegations from within the Mormon Church that some of its most prominent members were involved in SRA. Two professional investigators interviewed hundreds of victims of alleged SRA, noting the details and following up all available leads. They found evidence for only one case of Satanic Ritual Abuse involving torture of children and simulated murder of infants. This case was not prosecuted because of the statute of limitations in the state of Utah.

Investigations elsewhere reached very similar conclusions. In Holland an inquiry found that there was no evidence for such activities and that they were largely in the minds of those who reported them. Whether widely promulgated or not, the findings of these professional investigations had little or no effect upon the allegations the prosecutions and the occasional gaoling of individuals accused of such crimes. >>>

British publication of *Michelle Remembers* began a gradual increase in allegations of SRA throughout the UK. These cases primarily involved social work agencies and police, many of whom were 'trained' by visiting American 'experts' in various forms of investigation methods and counselling of sexually abused children. American folklorist Bill Ellis conducted an important study of the processes by which the Satan scare reached Britain from the United States. He traced the origins of modern interest in, and influence of, satanism in the works of Aleister Crowley, Gerald Gardiner and others and also notes the long, if usually submerged traditions of witchcraft and black magic in Britain. A fundamental element of Ellis' study is the interaction between the folkloric beliefs and press, television, film and popular literature. Ellis draws a direct line between the histories, mythologies and incidents discussed in his article and the disastrous events that subsequently took place in Rochdale and the Orkney Islands.

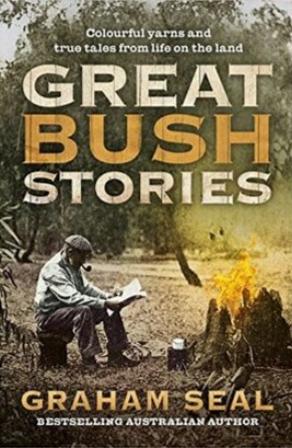
The Orkney Islands SRA case was the best-known of the many such events. Beginning in early 1991, the Orkney's affair involved early morning raids by social workers and the forced separation of parents and children. Medical examination of the children found no evidence of sexual abuse but this, together with widely-expressed doubts about the veracity of child testimonies, did not prevent some years of acrimonious legal and governmental debate. Although the prosecution case in this matter collapsed, the parents mounted a very large legal claim for damages against the British government.

In the wake of this and other similar debacles, including the Rochdale case (dismissed in 1991),

came the findings of a report into satanic ritual abuse of children by emeritus Professor Jean La Fontaine, social anthropologist. La Fontaine was commissioned by the Department of Health and given access to the records of 84 British SRA cases going back to 1988. Her investigative team was formed at Manchester University and issued its report in 1994. In only three of these was evidence found of ritual activity combined with sexual abuse. Her conclusion regarding the remaining 81 cases was that satanic ritual abuse 'was not happening and is not happening'.

Generally, the report observed that the interviews with children, upon which the legal cases were generally based, were poorly done, with frequent and aggressive questioning. Rumours of SRA had been spread on the basis of dubious information and some Evangelical Christians, psychologists, child-care workers, and health-care professionals were responsible for the transmission of these delusions. The report concluded that there was no SRA in Britain and that the efforts and energy being put into attempting to prove that there was only had the unhappy effect of diverting attention and resources away from those children who were genuinely suffering at the hands of real – i.e., non-Satanist – abusers.

In 2019, a documentary on this topic, titled *Demonic*, was the only Australian film to feature at the Cannes Film Festival. Director Pia Borg gave her motivation for making the film as "I feel like the Satanic panic is something that people are a little bit ashamed of ... something that was swept under the rug."

Prof. Graham Seal

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